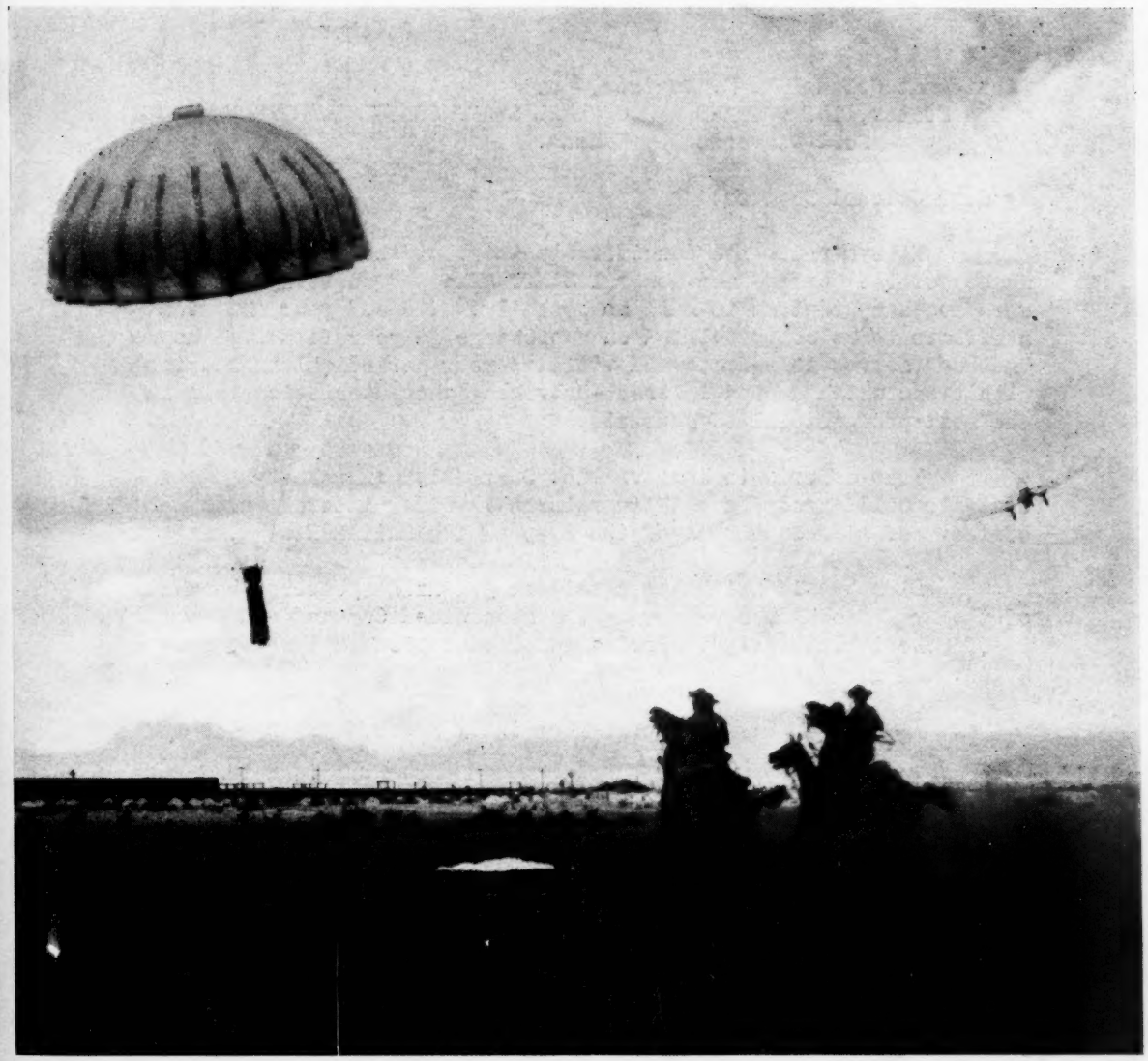
THE

COMMAND AND GENERAL STAFF SCHOOL

QUARTERLY



December, 1938, Review of Military Literature

VOL. XVIII, No. 71

WAR DEPARTMENT
OFFICE OF THE CHIEF OF STAFF
WASHINGTON, D.C.

October 3, 1938.

Lieutenant Colonel P. R. Davison,
Editor, THE COMMAND AND GENERAL STAFF SCHOOL QUARTERLY,
Fort Leavenworth, Kansas.

My dear Colonel Davison:

I have read with considerable interest the September, 1938, number of The Command and General Staff School "Quarterly" which you were so thoughtful as to mail me recently. You and your editorial staff are to be congratulated on the change in your format. The new "get up" serves to animate and vitalize your periodical in keeping with times which demand interest-provoking characteristics even in the most professional of journals.

Your efforts to improve the "Quarterly" in make-up and in contents will surely have their returns in wider interest among officers of all components of the Army of the United States.

Side by side with the excellent journals sponsored by most of the Army's branches we now have a modernized Command and General Staff School "Quarterly". Professional education is thereby promoted.

Cordially yours,

MALIN CRAIG,
Chief of Staff.

Volume XVIII
1938

Number 71

THE

COMMAND AND GENERAL STAFF SCHOOL

QUARTERLY

REVIEW OF MILITARY LITERATURE

LIEUTENANT COLONEL P. R. DAVISON, *Editor*
MAJOR E. M. BENITEZ, *Assistant Editor*

December, 1938

Fourth Quarter

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Books

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The Ramparts We Watch—*By Major George F. Eliot*

Official History of the Canadian Forces in the Great War 1914-1918. Vol. I: August, 1914-September 1915—*By Colonel A. Fortescue Duguid*

Machine Guns: Their History and Development—*By Lieut. Colonel G. S. Hutchison*

Der Kampfwagenkrieg (Tank Warfare.)—*By General Ludwig R. von Eimannsberger*

Forty Years of American-Japanese Relations—*By Francis R. Dulles*

Elihu Root—*By Philip C. Jessup*

Vauban—*By Sir Reginald Blomfield*

Benjamin Franklin—*By Carl Van Doren*

The Mediterranean in Politics—*By Elizabeth Monroe*

Building the British Empire—*By James Truslow Adams*

Blood and Steel—*By Bernard Menne*

Three Harbours—*By F. Van Wyck Mason*

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Mission

The object of this publication is a systematic review of current military literature, through cataloging articles of professional value, in selected military and naval periodicals, in the domestic and foreign field.

Articles from foreign periodicals are treated by translations of titles and digests of contents; material of particular importance is covered more extensively in a section of "Foreign Military Digests."

A "Library Bulletin" Section lists books, recently accessioned, which are of particular significance.

This *Quarterly* is published as a guide to modern military tendencies and to inspire vigorous thoughts on the subjects treated.

The trend of this issue of the *Quarterly* is towards supply and transportation.

The opinions expressed by authors are not necessarily official.

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Acknowledgment

The editors of the *Quarterly* desire to express their thanks and appreciation to the many persons who have valuably assisted in the preparation of material for this issue. The work of contributors has been done in addition to their other duties and on their own time. We are very grateful to the following officers for their generous donations:

MAJOR G.J. BRAUN: *Militär-Wochenblatt* (22, 29 April, 6, 13 May 1938).

COLONEL L.H. BRERETON: *Revue de l'Armée de l'Air* (May, June, July 1938).

MAJOR J.W. COFFEY: "Behind China's Battle Lines."

CAPTAIN H.N. HARTNESS: *Die Kraftfahrkampftruppe* (June 1938).

LIEUTENANT COLONEL L.W. HILLIARD: *Revue Militaire Suisse* (June 1938).

LIEUTENANT COLONEL B.R. LEGGE: *Revue d'Artillerie* (December 1937, January-June 1938, inclusive).

MAJOR T.R. PHILLIPS: *La France Militaire* (4, 10, 12 and 13, 21, 23, 28 June, 12 August 1938); *Revue Militaire Générale* (June 1938); *Revue Militaire Suisse* (March, April, May 1938).

LIEUTENANT J.W. RUDOLPH: "Behind China's Battle Lines"; Book Reviews.

MAJOR R.G. TINDALL: *Revue d'Infanterie* (April, May 1938); *Revue Militaire Générale* (April, May 1938).

MAJOR L.K. TRUSCOTT, JR.: *Revue de Cavalerie* (May-June, July-August 1938).

●

The Cover

During a test in the First Cavalry Division, Texas, all supplies, including food for men, hay and grain for animals and fuel for cooking, required for 30 men and their mounts were supplied for a period of five days by air transport, delivery being made without landing by the use of a parachute. (*Official Photograph, U.S. Army Air Corps*)

Behind China's Battle Lines

By Major J. W. Coffey, *Ordnance*
and
Lieutenant J. W. Rudolph, *Infantry*

World Wide Photo.

A million Chinese soldiers have died in defense of their country in the past year and a half. A relentless invader has seized all of China's seaports, occupied the chief industrial areas, and captured practically every mile of railroad, driving the defenders westward into a vast and undeveloped hinterland. The resulting communications and supply isolation is unparalleled in modern military operations. Yet, despite unbelievable difficulties, China's groping armies appear undismayed and capable of further bitter resistance.

How long can China continue this desperate and unequal fight for life? The double loss of Canton and Hankow, a staggering blow, has initiated the most critical phase of this remarkable struggle. The eventual outcome depends upon two principal factors: the will of the Chinese leaders and people and the availability of material means to carry on. The first is extremely difficult of evaluation, being uncertain, variable, and subject at any moment to those unpredictable changes common to the individual mind and mass opinion. The second item, availability of material means, is more tangible and possible of definite analysis.

This study will embrace only the second, the "supply" factor; those problems of communication facilities, resources, requirements, and other matters usually associated with the broadest interpretation of supply. Authentic source material is extremely limited. Tactical operations have received enough attention to enable even the casual reader to follow the general strategy of the antagonists; books have been written on Chinese character and politics, but the very practical question of logistics has been universally neglected. Dearth of historical evidence on this subject is not unusual. The colorful activities of man against man upon the field of battle have always held more appeal than the prosaic struggle of man against food and munitions.

LINES OF COMMUNICATION—JULY, 1937

China is a land of vast distances, diverse terrain, and meager transportation facilities. Richly endowed in natural resources, she is virtually barren of industrial means to convert raw materials into munitions. Not only is China almost completely dependent upon imports for essential war supplies, but even after procurement she faces a tremendous problem of distribution within her own borders.

At the outbreak of hostilities China possessed four main lines of communication over which supplies could be shipped into the country, as indicated on Map 1. In the study of the communications net, attention is invited to the following points:

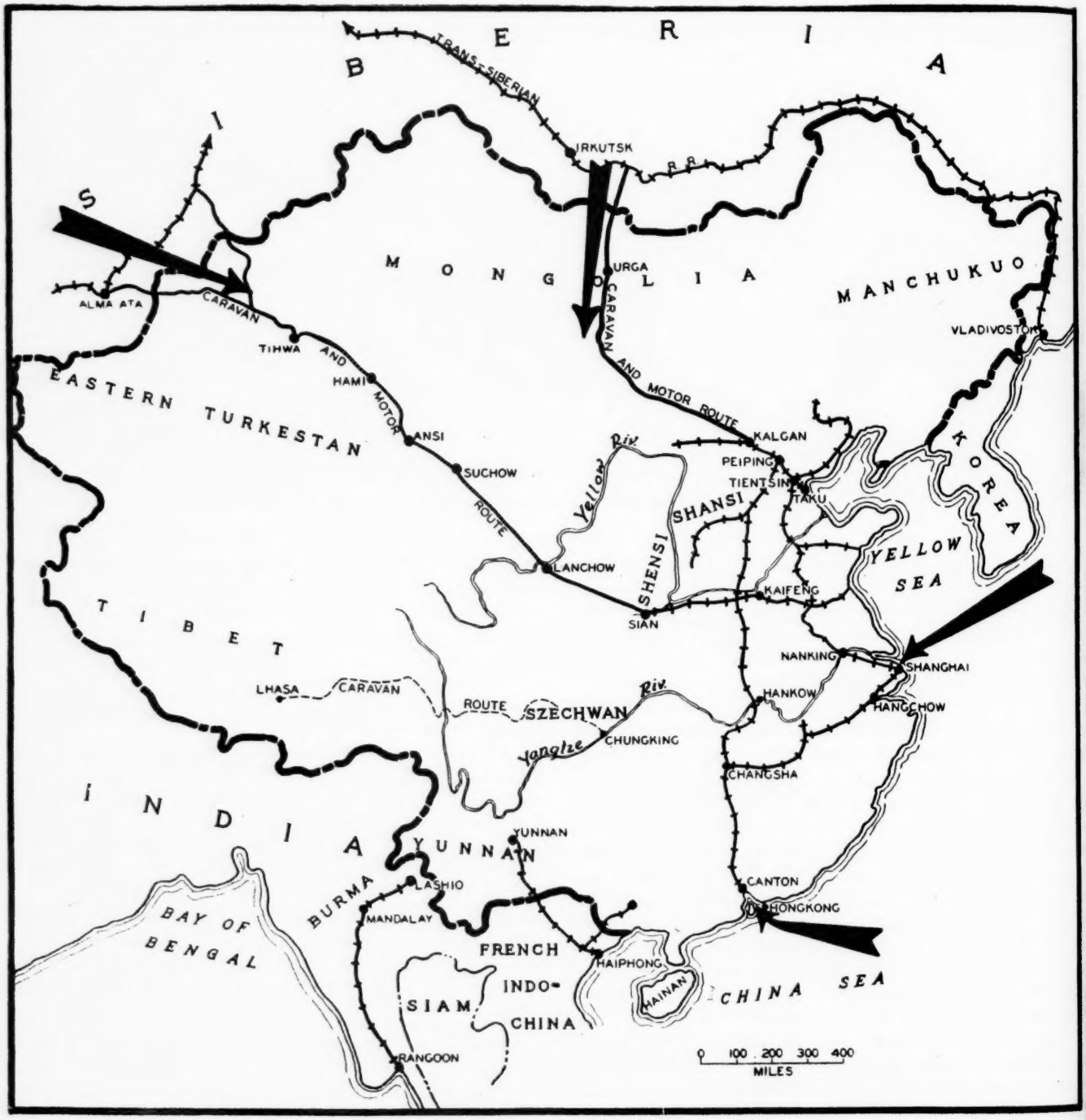
> The western limit of the rail net, for all practical purposes, is the Peiping—Hankow—Canton line. However, rich provinces of China, inhabited by many millions of people, extend more than 2,000 miles westward of this line.
>
> Supply contact with the western provinces is limited to one caravan and motor route, one caravan

trail, and two river systems. The Yellow River, because of its treacherous and turbulent nature, is of uncertain communications value.

On the other hand, the Yangtze River system is and has been for centuries the backbone of communications in Central China. Chinese junks operating leisurely on the broad and muddy waters of this river are as important to China as huge trucks speeding over highways are to the United States.

Of the three important seaports—Shanghai, Canton, and Taku—only two were available for use in war; Taku was in a demilitarized zone, but for all practical purposes it was controlled by the Japanese.

The shortest and most practical of the pre-war land routes to external sources of supply was the Urga–Kalgan line from Russia. This highly strategic link was promptly severed by the capture of Peiping and the invasion of Suiyuan Province.



LINES OF COMMUNICATION – JULY 1937

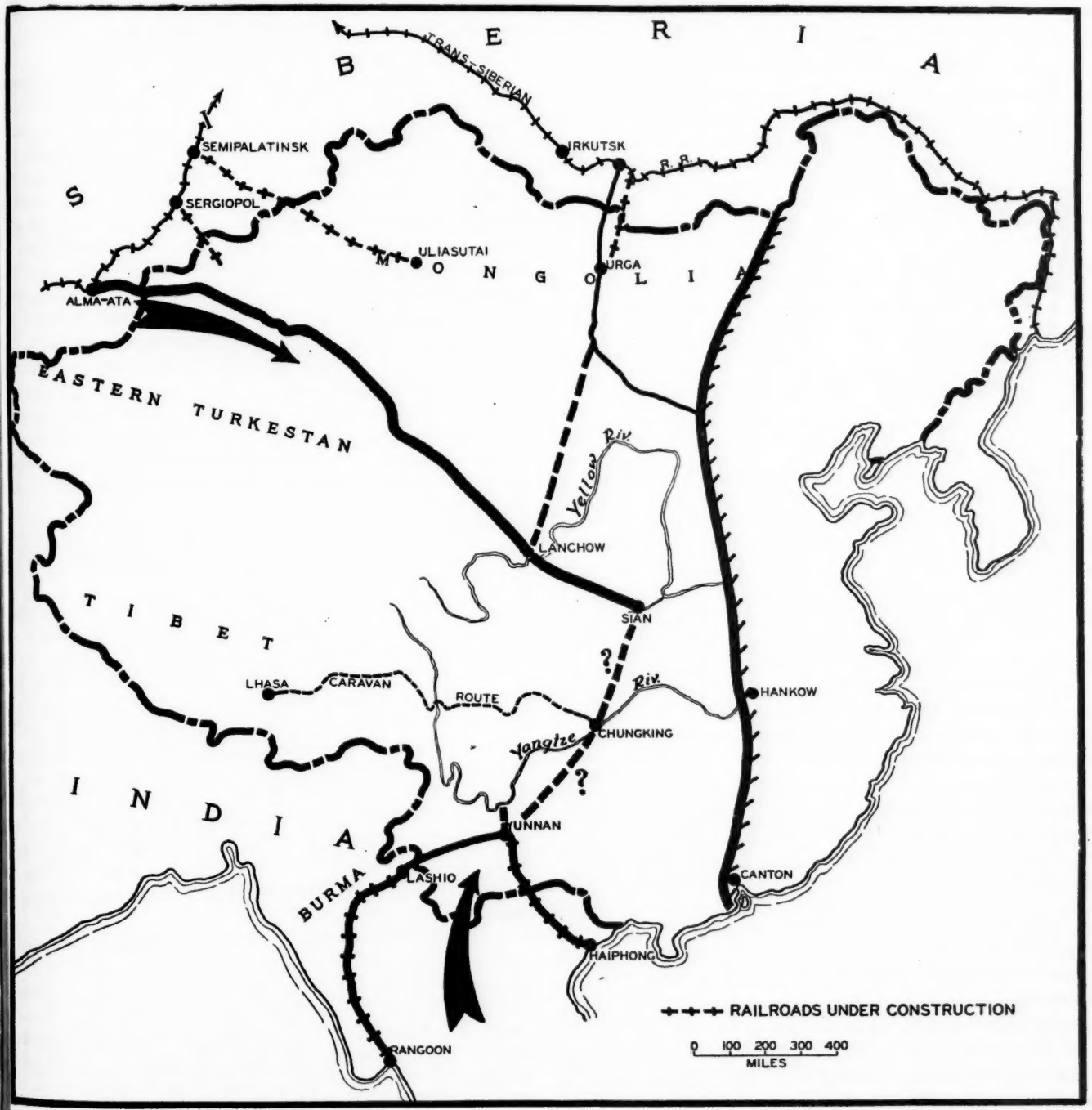
MAP 1

The Sian—Alma Ata road follows the ancient "silk route," since the days of Marco Polo the principal caravan trail from China to northern Europe. According to American standards this road, in July, 1937, was a secondary motor road.

The caravan trail to Tibet is of distinctly minor importance, as it taps no large supply source.

Two foreign roalroads contact southwestern China from French Indo-China and British Burma. Maps of this area prior to July, 1937, indicate no roads between Lashio and Yunnan, nor from Yunnan to the north and east. Undoubtedly, some sort of road or trail ran from Yunnan to a point on the Yangtze, and one from Yunnan to Changsha or Chungking. These facilities could not be considered, at the beginning of the war, a primary line of supply into the probable battle zone.

An estimate made in July, 1937, would have concluded that when the principal communications facilities then in operation (Map 1) were secured, the war would be over. Control of those communications—China's seaports, railroads, rivers, and road net—has been a major objective of Japan's strategy since the beginning of the war.



LINES OF COMMUNICATION—DECEMBER, 1938

MAP 2

LINES OF COMMUNICATION—DECEMBER, 1938

Map 2 presents a discouraging picture. In eighteen months of war the Japanese have severed every original line of communication except the long and arduous Sian—Alma Ata route to Russia. First to go was the Urga—Kalgan line, followed by Shanghai and the interior communications system of North China. Sole seaport to escape the strangulation of naval blockade was Canton, which enjoyed a measure of immunity from its proximity to the British crown colony of Hong Kong.

Fortunately for China, the Canton—Hankow railroad remained open until just before the capture of its two terminals. Canton became a gigantic clearing house for munitions pouring into Nationalist China. Maintenance of this railway, over which an estimated eighty per cent of all his heavy stores passed, was vital to the commander of the Chinese armies. Its continued service under incessant bombing was a major triumph for native labor. So successfully was this route operated that its destruction became a military necessity, a step Japan did not take, however, until after the settlement of Munich.

An impression of the munitions traffic that flowed through Canton may be gleaned from the contents of a Japanese dispatch from Hong Kong, dated 18 January, 1938. According to this account, between 25 December and 15 January, more than eighteen vessels unloaded 4,500 tons of gunpowder and explosives, 1,450 tons of barbed wire, 3,500 tons of railway materials, 2,600 tons of rifles and machine guns, and 61 airplanes. Even allowing for a liberal discount, the tonnage is still impressive. When Canton and Hankow fell, this traffic ceased.

What has China been doing as, one after another, her feeder lines from outside sources have been closed? Anticipatory measures taken are excellent examples of long-range supply planning—efforts that furnish red-letter items for a G-4 notebook. For months there has been feverish activity on the southern line to Burma and Indo-China as well as along the Sian—Alma Ata line to Russia. Apparently someone foresaw that Canton might be lost before these back-door routes were ready for extensive military use, for it is reported that several months of war reserves have been accumulated west of Hankow—reserves that are expected to meet demands during the period required to shift the lines of communication to the west.

A glance at the map will indicate the southern supply line, or system. Ever since the war began a motor road has been under construction from the railhead at Lashio, Burma to Yunnan. Hordes of coolies have labored unremittingly to push this road across mountainous and undeveloped country, overcoming incredible engineering problems to rush it to completion. Pictures in the 7 November issue of *Life* Magazine, showing type construction work on this highway, present a dramatic view of the transition from trackless wilderness to modern multitrack motor roads. This highway is expected to be ready for use by the first of the year.

The railroad from French Indo-China to Yunnan has been a puzzle throughout the war. The Japanese have repeatedly charged that the French government is allowing it to be used for supplying the Chinese, while the French have denied the accusation. No information is available to indicate how much traffic has passed over this railroad. In any event, this part of the southern supply line is very uncertain. If it is used, it is liable to be closed at any moment under Japanese pressure.

Between Yunnan and Chungking, maps indicate no communications link of any kind. It is believed that a motor road is under construction south of the Yangtze; in the meantime the Yangtze itself probably constitutes the main artery. With the cutting of the railroad north of Hankow, the Sian route has been temporarily interrupted, but it is reasonable to assume that another road between Chungking and Sian has been or is being built. Reports of extensive railroad building across Mongolia (Map 2) are vague and unconfirmed. Such roads probably will not be ready for use for some time if they are being considered at all.

The northwestern route to Russia is in an advanced stage of construction. Today a modern highway follows the ancient caravan trail from Alma Ata to Sian, an estimated journey of at least 2,000 miles. Along this vital supply line munitions have been moving ever since the Urga route was severed. Their movement presents an interesting calculation in logistics. Assuming the length of the route as estimated, the round trip will cover a distance of 4,000 miles. If the trucks operating on this route, mostly of the one and one-half ton variety, are as efficient as the ton and a half carrier used by the United States Army, the average gas consumption per round trip would be at least one and a half tons of gas and oil for every pay load of cargo. Moreover, that curse of the American countryside—mushroom growths of filling stations surrounding every crossroad—is not an affliction in China. Every gallon of gasoline and oil used for the journey must be shipped tremendous distances to depots along the route. Army quartermasters grow grey-haired young in Mongolia.

The Tibetan route is still merely a series of caravan trails, limited to the transportation of light supplies, such as salt and medicines.

From the above brief survey it will be seen that China is now restricted to one tremendously long motor road in the north and one route, part rail and part motor or water, in the south. There are no lateral lines of communication worthy of the name. A limited quantity of munitions can be transported over these lines, but far from enough to meet modern requirements for intensive combat. Even if the Chinese were adequately equipped with artillery they could not get anything like a sufficient amount of ammunition. A modern army of half a million men can use as much as seven thousand tons of artillery ammunition alone in a single day of operations, as happened in the World War. What chance has China to procure and distribute munitions at this stupendous rate?

It is difficult to visualize a situation so far away and in such a setting as China. For realistic purposes, it might be assumed that the theater of war were transferred en bloc to the United States, in which case, the following situation would be encountered: An invader has occupied all territory east of the Mississippi, including virtually all of our industrial areas. The battle line extends from Minneapolis to New Orleans, with base depots at Seattle, Los Angeles, and Brownsville (at the mouth of the Rio Grande River). The northern front is being supplied over a single motor road

from Seattle to Kansas City, while the southern portion of the line draws its munitions from Los Angeles and Brownsville. The supplies for the southern front are transported by rail to a point in the extreme northwest corner of the Texas panhandle, and then must be trans-shipped by truck or boat to Tulsa, Oklahoma. Kansas City and Tulsa are forward depots, still three to four hundred miles from the front lines. There remains the task of distribution to combat units over an area with a road net that is primitive at best.

How long could "West" operate offensively under such conditions? In all probability "West" could go on fighting, but operations would be limited to just that type of warfare now carried on by one group of Chinese armies—"short and decisive engagements, begun and finished quickly"—guerrilla warfare patterned on a large scale.

From this general analysis of China's lines of communication the following features stand out:

China has been forced to create new avenues of supply, a task whose magnitude is without precedent in military history.

Her armed forces have not been "bottled-up" in any sense of the word; they have strategical freedom of maneuver and some sources and means of supply.

The supply of essential munitions is definitely restricted, at least temporarily, but some reserves probably are available to cover the critical period.

Herculean efforts are being made to improve existing supply routes and to build new ones.

China's new lines of communication will be, for all practical purposes, invulnerable to direct attack by Japan.

RESOURCES AND REQUIREMENTS

If China's communications system is bad, her industrial system is worse, for China is a country in which the machine has made little headway. For this situation she has no one to blame but herself. Foreign capital has tried vainly for more than a century to exploit her industrial possibilities.

At the beginning of the war a number of small arsenals were manufacturing poor reproductions of foreign infantry armament—such as rifles, pistols, sub-machine guns, and trench mortars; also ammunition for these weapons. Most of these alleged arsenals were simply large workshops, each originally the property of a provincial war lord. It was unfortunate for China that she lost in 1931 the Mukden Arsenal in Manchuria; this was a modern arsenal employing 17,000 men and equipped with means to produce field weapons and ammunition of all types. However, the combined 1937 facilities at peak production could not begin to meet the requirements of a national war; furthermore, such industrial facilities as China did have in July 1937 are now in possession of the Japanese.

The crying need of the Chinese armies is artillery and artillery ammunition. In warfare of today powerful artillery support is required for sustained offensive and strong defensive combat. Native industry at present is incapable of mass production of modern artillery weapons and the complex ammunition that they use. Furthermore, China has been unable to procure anything even approaching a minimum amount of artillery matériel since all must be obtained from foreign sources; it is costly, it is heavy, and it must be transported over tremendous distances. Tanks and airplanes would be highly desirable but, for China, they must be classed at present as battlefield luxuries.

Practically all the raw materials necessary to self-sufficiency are within China's borders; the diversification of natural products is astounding. It is unfortunate for this nation that she has so little means for extracting her riches from the earth and for converting them into the sinews of war.

A knowledge of the general location of the bulk of China's natural resources is necessary for an understanding of the supply situation. As provinces are mentioned reference should be made to Map 1.

Szechwan Province, housing 52 million people in an area of 167,000 square miles, can produce practically everything to be found elsewhere in China. Every type of cereal grows in this province, including fifteen per cent of the national rice crop, as well as tobacco, wood-oil, sugar cane, beans, and cotton. Its mineral deposits include unestimated amounts of coal, iron ore, gold, copper, silver, and petroleum—all virtually untapped. Szechwan also produces great quantities of salt and tea and some of the world's finest silk.

Yunnan Province likewise has much natural wealth. The most important war product is tin, while it also raises maize, wheat, fruits, oats, and vegetables.

Kweichow Province, just northeast of Yunnan, is a vast rugged region, ideal cattle and fruit country. Of more military importance are the deposits of iron, antimony, quicksilver, coal, and copper.

For all their treasures, the southwestern areas are still "backward" provinces. In them life is primitive, travel difficult, and industry confined to farming and handicrafts. There were no factories, mines, or refineries; no highways or railroads to carry raw materials to the outside. And yet, it was the trade of these interior provinces—their rice, tea, cotton, silk, and cereals that poured by caravan and river junk into the channels of commerce—that helped to make Shanghai and Canton the great market cities of China.

Events of the past year, however, have shattered the quiet isolation of this back country. Millions of refugees have poured into the southwest areas with terrific social impact upon the leisurely existence of the natives. Not all of these refugees were destitute coolies; many were technicians, professional men, and progressive merchants, some with financial means and alert to the possibilities of this virgin territory. These men have begun to build and promote industries for even today in the western provinces small factories are reported in process of construction and large scale industrialization is being planned.

The greatest obstacle to this program is the lack of adequate machinery. Although thousands of tons of factory equipment were dismantled and sent into the interior before the advance of the Japanese, much of it is still in transit. Moreover, the amount salvaged is but a drop in the bucket of China's requirements. New machinery is prevented from entering the country by the lack of communications; war matériel will monopolize existing or future supply lines. In any event, the establishment of an adequate industrial system in southwestern China is a matter of years.

What then do these general conditions reveal? Briefly this: that the Chinese armies still have the richest part of their country *behind* them; that months will be required before even original industrial capacity can be restored; that Rangoon, Burma, and Haiphong, Indo-China, are in a position to take over directly the trade functions of Shanghai and Canton; that China must continue to rely upon outside sources for all the heavy and most of the lighter combat matériel.

In almost all other respects China's resources are adequate. First and foremost are the basic necessities of food and clothing. The uninvaded provinces have tremendous agricultural capacity. The war naturally has intensified crop raising; also particularly favorable weather conditions during the past year have helped. Furthermore, the Chinese soldier requires little in the way of rations; he can march and fight longer on less food than any soldier in the world. Actually, the majority of the Chinese troops are probably better fed today than at any time in their hunger-ridden lives.

The clothing situation is similar. Cotton, basic cloth for all Chinese garments, is plentiful, although means of

World Wide Photo.

spinning and weaving have been curtailed. The creation of innumerable small mills and home industry is meeting the problem for the troops in the field. Lack of what our people would consider proper and necessary clothing has never seriously bothered the Chinese. Rags are often royal raiment to the Chinese peasant.

Perhaps the most serious deficiency next to guns and trucks has been the lack of medical service. Basic facilities seem to be present at least in name; aid stations, casualty clearing stations, field and base hospitals are mentioned occasionally in despatches. Probably a limited number actually are in operation but there is without doubt a pitiful shortage of doctors, medical supplies, and ambulances. The traditional herb-doctor, and there are many in service, cannot take the place of the trained surgeon in the proper care of battle casualties. In any other army the appalling conditions of sanitation and the dearth of medicines and medical care would be ruinous; to the Chinese it is serious but not disastrous. The Chinese have never had anything approaching modern medical attention and therefore do not miss it greatly. Close association with dirt and disease has given most of them a measure of immunity. Plagues and epidemics are so common that they excite no great concern. Human life is the cheapest and most plentiful commodity in China.

When the requirements of Chinese armies for food, personal equipment, and medical service are considered together it might well be said that the supply service for an army is complex and difficult of operation in direct proportion to the standard of living of the nation concerned.

A seemingly inexhaustible reservoir of manpower exists in China's teeming millions, both for military and labor service. The speed with which great highways have been pushed across mountains and deserts, the maintenance of railways under incessant air bombing, and the supply of troops in the combat zone are achievements which are lessons in the possibilities of men without machines.

Basic transport means are the same today as they have been for ages. Of course some trucks are available but these must be used on the long supply lines and the few motor roads in the combat zone. Forward of truck-heads, sweating coolies, two-wheeled carts, and wheelbarrows are the principal carriers for the distribution of supplies to troops. The Chinese, through centuries of backbreaking labor, have developed a remarkable facility in handling baled goods. A western army might not be able to function with such crude transport but the Chinese apparently do very well.

No one knows exactly the state of China's finances, but her currency has held up remarkably well, and her credit appears excellent in spite of her desperate plight. In the course of ages much precious metal has disappeared within China; it is quite possible that there are many hidden hoards, large and small. Furthermore it is believed that there are large sums of money on deposit in banks in the United States and England; the strong unification of race among Chinese all over the world has resulted in maximum contributions to the support of the war. General Chiang Kai-shek's war chest, into which he has reputedly dipped only sparingly, is apparently sufficient for some time to come. At least, foreign business shows little hesitation about selling to China.

AN ESTIMATE OF THE SITUATION

It is unfortunate that so little reliable factual data is available at the present time. Both sides are covering up; the "fog of war" has never been thicker over any theater of operations. Nevertheless, even though details of the complete picture are obscure or missing the general setting can be seen dimly through the haze.

The preceding sections of this discussion state and partially evaluate that information on supply which is considered substantial. The whole is briefly summarized in the following estimate:

Resources.—

Lines of communication.—At present too limited in capacity to permit the movement of essential war munitions into the combat zone at a rate adequate for sustained intensive combat. Active and proposed construction should cause this rate to increase greatly but not to a point where supply will meet requirements necessary for offensive combat.

War matériel; practically none at present; domestic production will furnish a limited quantity of infantry weapons and ammunition as soon as facilities salvaged from occupied territory can be reestablished.

Food and personal equipment; adequate for requirements of the Chinese soldier.

Medical supplies; inadequate but not vital to Chinese armies.

Transport; inadequate for delivery of supplies from base depots to combat zone; adequate in combat zone for distribution of probable deliveries.

Labor and manpower; unlimited.

Finance; stable though depressed; sufficient metal reserves available to continue the war for an indefinite period.

Requirements.—

All major items of matériel usually utilized on the modern battlefield; and truck transport to move these supplies up to the combat zone. For political and economic reasons China will continue to receive a limited quantity of this matériel from foreign sources.

CONCLUSIONS

From the preceding estimate come these basic conclusions:

That the supply factor will limit Chinese strategy and tactics to defensive and guerrilla operations.

That China can continue this type of warfare as long as her leaders and people continue to be united in their will to fight Japan.

"SUN TZU said: The art of war is of vital importance to the State.

It is a matter of life and death, a road either to safety or to ruin. Hence it is a subject of inquiry which can on no account be neglected.

The art of war, is governed by five constant factors, to be taken into account into one's deliberations, when seeking to determine the conditions obtaining in the field.

These are: (1) The Moral Law; (2) Heaven; (3) Earth; (4) The Commander; (5) Method and Discipline.

***The Moral Law* causes the people to be in complete accord with their ruler, so that they will follow him regardless of their lives, undismayed by any danger.**

***Heaven* signifies night and day, cold and heat, times and seasons.**

***Earth* comprises distances, great and small; danger and security; open ground and narrow passes; the chances of life and death.**

***The Commander* stands for the virtues of wisdom, sincerity, benevolence, courage and strictness.**

By *Method and Discipline* are to be understood the marshalling of the army in its proper subdivisions, the gradations of rank among the officers, the maintenance of roads by which supplies may reach the army, and the control of military expenditure.

These five heads should be familiar to every general; he who knows them will be victorious; he who knows them not will fail."

—The Writings of Sun Tzu on the Art of War (505-496 B.C.)

MILITARY NEWS around the WORLD

BY

MAJOR E. M. BENITEZ, C.A.C.

GENERAL

The military strength of a nation consists of two factors:

(1) The actual military strength, which is represented by its standing army.

(2) The potential military strength in which the important element is the industrial and economic power.

The actual military strength of the six World Powers, outside the United States, has already been shown in previous issues.

VITAL STRATEGIC RAW MATERIALS

NATIONAL SELF-SUFFICIENCY OF EUROPEAN AND ASIATIC WORLD POWERS

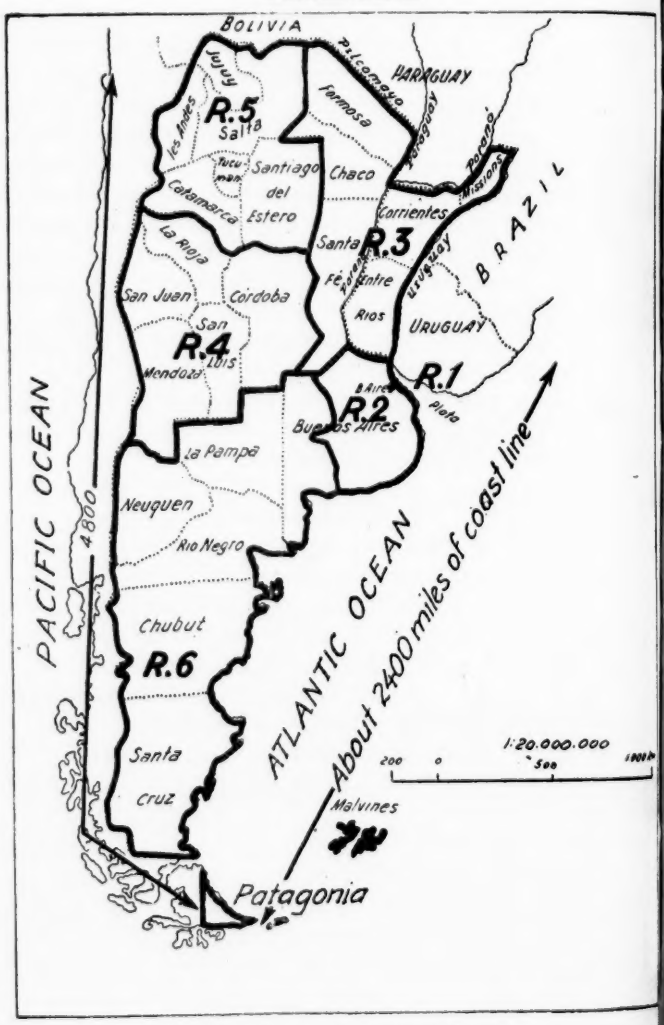
Material	*British Commonwealth**	*France* *	*Germany*	*Italy*	*Russia*	*Japan*	*Remarks*
Coal	a	b	a	c	a	a	a = Self-sufficiency.
Iron ore	b	a	b	c	a	b	
Copper	c	c	c	c	b	b	b = Partial self-sufficiency.
Lead	c	c	b	b	b	c	
Zinc	c	c	b	a	b	b	
Nickel	a	c	c	c	c	c	c = Lack of self-sufficiency.
Tin	a	c	c	c	c	b	
Aluminum	c	a	c	a	b	c	
Manganese	a	c	b	b	a	b	*The greatest portion of the raw materials of England and France are found in their colonies.
Antimony	c	b	b	b	c	c	
Petroleum	a	c	c	c	a	c	
Tungsten	a	b	b	c	c	a	
Mercury	c	c	c	a	a	c	
Chromium	a	c	c	c	a	a	
Platinum	a	c	c	c	a	c	
Sulphur	b	b	b	a	b	a	
Nitrates	a	a	a	a	a	a	
Phosphates	b	b	b	c	b	b	
Potash	c	a	a	b	a	c	
Asbestos	a	c	c	c	a	c	
Mica	a	c	c	c	a	a	
Wool	a	c	c	c	a	c	
Cotton	b	c	c	c	a	c	
Silk	c	c	c	a	b	a	
Coffee	c	c	c	c	c	c	
Hides	b	c	b	b	a	c	
Manila Fiber	c	c	c	c	c	c	
Iodine	c	c	c	c	c	a	
Opium	a	c	c	c	c	a	
Rubber	a	c	c	c	c	c	
Camphor	c	b	a	c	c	a	
Nux Vomica	a	c	c	c	c	c	
Shellac	a	a	c	c	c	c	
Jute	a	c	c	c	a	c	
Hemp	c	b	b	a	a	c	
Sisal	c	c	c	c	c	c	
Quinine	b	c	c	c	c	c	
Cocoanut shells	a	c	c	c	c	c	
Sugar	b	c	b	c	c	c	

The above table shows the list of vital "strategic" materials, so called because they are necessary to national defense. A detailed analysis of each of them would be too lengthy and unnecessary since their importance is obvious in most cases. For instance, opium is necessary in surgery for relief of pain; coffee and sugar are highly important to maintain the morale, both in the army and at home; silk is used for the manufacture of parachute and powder bags; cocoanut shells produce the best charcoal for use in gas masks; nickel toughens steel; hides make shoes for the army and for the civilian population, while wool and cotton are used for the manufacture of clothing.

The United States, the British Empire and, to a lesser extent, Russia are outstanding in potential wartime self-sufficiency. No nation, however, is absolutely self-sustaining. The peacetime problem is, therefore, to work out a program that will remedy existing deficiencies in anticipation of an emergency.

Industry and strategy are closely connected. The World War taught all countries the necessity for organizing their industries in order to become as independent as possible from the import of raw materials. The fighting power of an army depends to a large extent upon the efficiency of the service of supply.

ARGENTINE



MILITARY AREAS, ARGENTINE REPUBLIC

The country is divided into six military areas, each corresponding to an army division.

The weapon of the infantry is at present the Mauser, the cavalry uses the Mauser carbine. The artillery is armed with Krupp 75-mm.

(*Statesman's Year Book*, 1938)

BELGIUM

Antiaircraft defense:

There are two regiments of antiaircraft artillery, organized as follows:

1st Regiment:

Headquarters
1 gun group of 2 batteries, motorized
4 gun groups of 2 batteries each
1 depot battery and park.

2d Regiment:

Headquarters
1 searchlight group of 2 batteries
1 warning service battery
1 depot battery and park
40-mm gun sections.

In addition, there is a technical service consisting of a workshop battery and park and an antiaircraft defense school.

(*Armaments Year Book*, 1937)

BOLIVIA

The territory of the Republic is divided into three military districts: northern, central and southern. Each district is commanded by a Brigadier General.

The highest unit is the division. The army consists of 12 infantry regiments, 6 cavalry regiments, 1 regiment of field artillery and 3 regiments of mountain artillery, 6 battalions of engineers and 2 aviation flights (20 machines).

(*Armaments Year Book*, 1937)

BRAZIL

The government has detailed the following number of officers for training abroad:

14 aviators to England
7 aviators to Italy for training with "Breda" machines
3 aviators to Germany for training in blind flying
4 officers to inspect and receive "Gladiators" planes from England
4 officers to inspect the "Breda-65" machines in Italy.

The Chief of the French Military Mission, General Noel, having served his prescribed tour, will be relieved by another general to be designated by the French Government.

(*Revista Militar*, Argentina)

BULGARIA

Bulgaria obtained a large loan from France recently and has also floated another in Germany for the purchase of armament.

(*Foreign Press*)

CHILE

Airplanes:

Six "Junkers" bombers bought by the government from Germany arrived on 5 July. They are supposed to be latest types of planes and will be assigned to the School of Military Aviation.

(*Revista Militar*, Argentina)

COLOMBIA

The Army consists of six brigades, three of which have two infantry battalions and the other three only two battalions each, a total of 753 officers and 9,630 other ranks.

The highest military school is the Staff College. The infantry, cavalry and artillery have field training schools for officers of those branches.

(*Armaments Year Book*, 1937)

COSTA RICA

The army is divided into two parts: the regular army and the reserve. The former includes all men between 18 and 40; the latter, men between 40 and 50.

There is also a national guard consisting of men between 50 and 60 years.

(*Armaments Year Book*, 1937)

CUBA

Orders for a number of ships are to be placed in England in connection with the formation of the Cuban Merchant Marine, to be financed by a British concern. For a number of years it is proposed that the new ships of the fleet will have British masters, officers and engineers, and each ship will carry a number of Cuban cadets for training in all branches.

(*The Engineer*, London)

CZECHOSLOVAKIA

Before the Munich Pact, the army had a peacetime strength of 180,000 men and consisted of the following units:

7 army corps
12 infantry divisions plus 2 mountain brigades
4 cavalry brigades (11 regiments)
7 engineer regiments
5 communications battalions
3 tank regiments
12 frontier battalions.

The infantry division consisted of two infantry brigades of two infantry regiments each and a field artillery brigade of two regiments—one light and one heavy. In addition, a group of mountain artillery, a tank company, one or two Alpine battalions and technical troops, were usually attached to the division.

The artillery was provided with the following matériel:

Field artillery (768 pieces): 80-mm gun and 100-mm howitzer.

Mountain artillery (60 pieces): 75-mm gun and 100-mm howitzer.

Corps artillery (504 pieces): 105-mm gun and 150-mm howitzer.

Heavy artillery (216 pieces): 150-mm (6-inch) gun, 240-mm (9.6-inch) gun, 210-mm (7-inch) mortar, 305-mm (10-inch) mortar.

Antiaircraft artillery (120 pieces): 90-mm gun, 83.5-mm gun, 76.5-mm gun, and the 66-mm which is still in the experimental stage.

The aviation consisted of seven regiments of three groups as follows:

4 groups of reconnaissance and pursuit
3 groups of bombardment
Total number of planes: Approximately 1400.

Czechoslovakia could mobilize an army of 1,500,000, well trained and equipped.

(*Bulletin Belge des Sciences Militaires*, September 1938)

The new army medium tank recently constructed has the following characteristics:

Weight.....7 tons
Length.....2 meters
Heighth.....1.8 meters
Armament...One small caliber gun and one machine gun in the turret, with another machine gun in rear
Crew.....Three to four men.

(*Militar-Wochenblatt*, No. 38, 1938)

Raw Materials:

Czechoslovakia has sufficient coal and wood. All other materials needed in war industry must be imported. Only one-third of the needs of the iron and steel industry can be met by domestic production. Czechoslovakia must also import grain and has no copper ore.

Armament:

The former Skoda Works in Pilzen changed, with the help of French capital, into the "Schneider — Creuzot — Skoda Concern," which represents now the greatest munitions plant in Czechoslovakia.

The Skoda Works employ about 40,000 people and manufactures all kinds of weapons and war equipment. It has branch establishments in Poland, Rumania and Yugoslavia. A large number of arms factories are situated in Bohemia, Moravia and Silesia. Some of them are too near the German border and are being moved to western Slovakia.

Great amounts of armament are being exported to the Little Entente countries, Turkey, Asia and South America.

(*Czechoslovak Army Manual*)

CZECHOSLOVAKIA AND ITS RAILWAY SYSTEM

The minority concessions started by the Munich Pact, 29 September 1938, cost Czechoslovakia approximately 16,165 square miles of territory as follows:

To Germany....10,885 Square Miles (Sudetenland)
To Poland..... 405 Square Miles
To Hungary.... 4,875 Square Miles

This reduces the republic from the 54,196 square miles she started when established by the World War treaties to a country of about 38,031 square miles.

ECUADOR

Military schools:

The most advanced center of technical studies is the Higher War School. There is also a military college for officers, a school for non-commissioned officers, a radio school and schools for different arms (infantry, artillery and cavalry).

An aviation school has been established and is commanded by army officers, but the technical direction is in the hands of an Italian military mission.

(*Armaments Year Book*, 1937)

FRANCE

The new Schneider 105-mm howitzer — tractor or horse-drawn — has a maximum range of 18,500 yards, a rate of fire of six rounds per minute, and is reported to be extremely accurate. Its average speed is 20 to 25 miles per hour on good roads, 10 to 12 miles on poor roads. This gun possesses many advantages over similar types of artillery of older models. Thus the French division artillery has two types of guns: the 75-mm with flat trajectory and the 105-mm howitzer providing high angle fire.

(*La France Militaire*, 15 October 1938)

The new French Infantry Drill Regulations will soon be issued to the service. A small edition was printed a short time ago by the War Ministry for use of a limited number of officials only.

(*La France Militaire*, 15 October 1938)

During the World War — in four and one-half years — 750,000 horses were used in France and 43,000 in Mesopotamia and Egypt. On all fronts there were a million in use, and the number purchased for war purposes was 1,361,000.

In August 1917 France had 193,319 horses and her war requirement was 799,661. Up to 1917 France purchased 1,188,539 from the United States and Spain. The United States had 477,262 horses, and of that number 192,000 were in France.

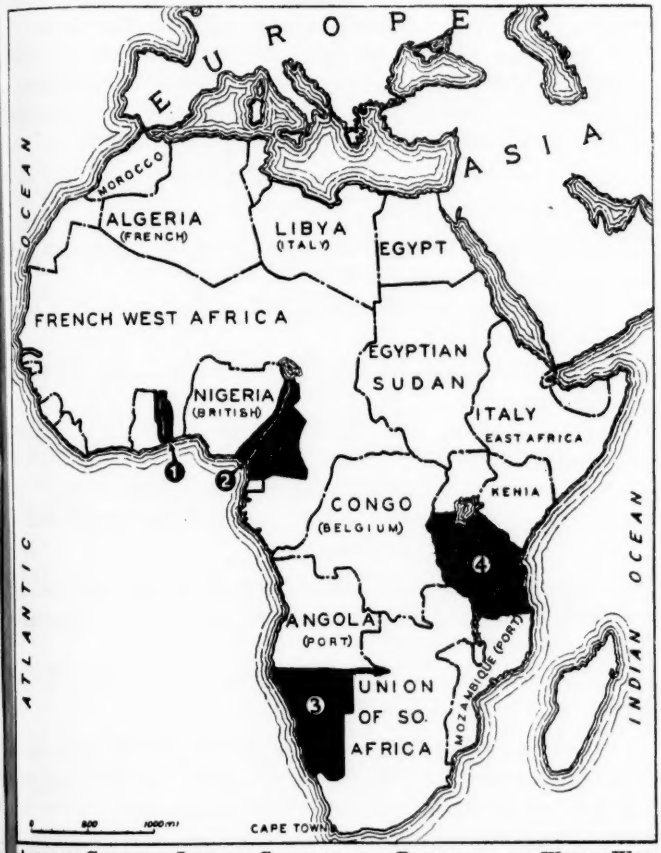
(*Military Surgeon*, November 1938)

GERMANY

Germany is demanding from France and Great Britain all her pre-war colonial possessions in Africa, which include the following:

Colony	Area in Square Miles	Population	Mandate
(1) Togoland	20,072	762,000	France
(2) Cameroons	34,081	817,616	Great Britain
(3) Southwest Africa	317,725	359,196	Union of South Africa
(4) Tanganyika	366,632	5,138,080	Great Britain

In addition to these, a group of former German islands in the Pacific Ocean, south of the Equator, including Samoa, New Guinea and Nauru, was distributed among Australia, New Zealand and Great Britain to administer, and a group north of the Equator was assigned to Japan.



AFRICAN COLONIES LOST BY GERMANY AS A RESULT OF THE WORLD WAR

Airplanes:

The earlier experiences of the Civil War in Spain showed that Reich aircraft was somewhat inferior to the Italian and Russian. A new Hemkel single seater pursuit has recently reached a speed of 401 miles per hour on tests over a course of 3 miles, which is not very far from half the velocity of sound.

A Grosser Dessauer, which is in reality a four-engined bunker, has recently gone up to 30,700 feet with a pay load aboard of 11,000 pounds.

(*United Services Review*)

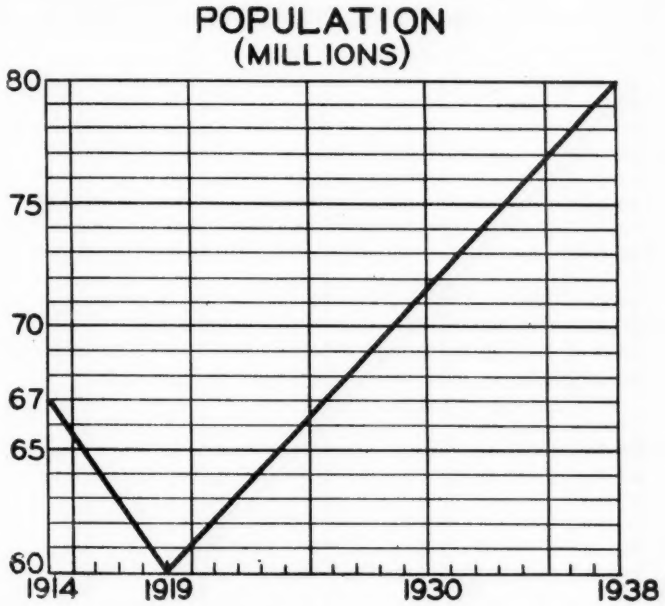
Army:

In October 1934 the German Army had 1,500,000 trained reserves (4,000 retired officers; 28,000 retired non-commissioned officers of the Reichswehr; 80,000 non-commissioned officers of the war; 126,000 Reichswehr, 250,000 old volunteers; one million old soldiers).

(*La France Militaire*, 3 October 1938)

Sudetenland:

The acquisition of Sudetenland with its 3,500,000 people gives the German Reich a total territory of 225,000 square miles and a population approximating 80,000,000, making it the largest and most densely populated state in Europe.



GROWTH OF GERMANY

1914.....Area: 209 Square Miles
1919.....Area: 181 Square Miles
1938.....Area: 220 Square Miles (including Sudetenland).

Army:

The German Army can mobilize the following divisions:

Divisions	1938	1939	1940
Regular Army	49	50 or more	50 or more
Reserve	38	45 or 46	46 or more, increasing from year to year
Landwehr	10	20	?
Landwehr Brigades	?	?	?
Total	87	115	?

By April 1939, Germany can have 50 reserve divisions, although they will not be as fully provided with artillery as the regular army divisions and the units will have a certain number of men without the proper training.

By way of comparison, in 1914, Germany mobilized at the beginning of the war more than 50 regular army divisions, and the equivalent of 60 and one-half reserve and landwehr divisions. During the course of the war, Germany had 200 divisions on a war footing.

The military laws enacted in 1935 are even more strict than those of 1914.

(*La France Militaire*)

Maneuvers:

During August and September 1938, army exercises amounting to a state of semi-mobilization for war, were carried out on an unexampled scale in Germany.

Over one million reservists were called to the colors and from 15 August to 5 September each of the 52 divisions of the

German Army carried out divisional training in its own area. From 5 September onwards, 18 army corps were engaged in combined training within each corps.

Work on the so-called Siegfried Line, Germany's western defenses, has been carried out at the highest pressure, and over 400,000 men are alleged to have been conscripted for this task, the early completion of which is regarded as essential for the security of the Reich.

(*Journal of the Royal United Service Institution*, London, November 1938)

GREAT BRITAIN

The *Mobile Division of 1937* is the most original and bold organization of that year. It consists of the following units:

1 tank brigade of 4 battalions
2 mobile brigades, each consisting of two light tank regiments and one battalion of motorized infantry
1 regiment of machine-gun cavalry
2 artillery units mechanized
Engineer and communication troops, motorized.

The Tank Corps consists of the following units:

1 brigade of 4 tank battalions
3 tank battalions (infantry support)
8 tank companies (in India).

(*Revue d'Infanterie*, July 1938)

Antiaircraft:

The British have found out that the 76-mm antiaircraft gun is not heavy enough, so the army has designed a new piece of 94-mm possessing greater initial velocity. They have also been experimenting for some time with a 127-mm gun, probably for emplacement by the seacoast.

The Vickers-Armstrong 40-mm of recent construction is for low flying planes. It has a maximum vertical range of 14,000 feet, initial muzzle velocity of from 1,970 to 2,460 feet per second, rate of fire of 120 rounds per gun per minute.

The British do not think so highly of the 20-mm Oerlikon. It can be deduced, therefore, that the Vickers 25.4-mm machine gun does not meet modern requirements any longer.

(*Rassegna di Cultura Militaire No. 5*)

Staff College reorganization:

In keeping with radical changes now in process in the British Army, a sweeping reorganization in the system of training officers for staff duty has been announced by the War Office and will take effect beginning with January 1939.

The Staff College will be divided into two wings: a Junior and a Senior Wing, both under one Commandant. The Junior Wing will train officers for Junior Staff appointments, while the Senior Wing will train Junior Staff officers for higher staff duties. Both courses will be for one year.

(*Canadian Defence Quarterly*)

Reorganization of the Royal Artillery:

The reorganization of the Royal Artillery has been approved by the King. It will, in the future, be divided into two separate branches — the Field Branch and the Coast Defense and Antiaircraft Branch.

The Field Branch will be comprised of all Horse, Field, Mountain, Medium, Field Army Heavy Brigades and Survey Companies.

The Coast Defense and Antiaircraft Branch will consist of all Heavy Brigades (other than those allotted to the Field Army), the Fixed Defenses and Antiaircraft Brigades and Batteries.

The anti-tank gun will be allotted to the Field Artillery instead of to the Infantry.

The Coast Defense and Antiaircraft Branch will be responsible for antiaircraft searchlight and defense electric light duties, which were heretofore performed by the Corps of Royal Engineers.

(*Canadian Defence Quarterly*, July 1938)

Automatic weapons:

In small-arms training next year the light automatic — the *Bren* gun — will be regarded as the major weapon of the rifle battalions and every soldier in these battalions will be trained in its use. The Bren has proved to be an excellent all-purpose weapon and is ultimately to take the place of the Vickers gun as the arm of the machine-gun battalions.

(*Canadian Defence Quarterly*, July 1938)

*Territorial Army:**

The strength of the Territorial Army on 1 January 1938 was 9,046 officers and 149,797 enlisted men.

Its role for the future as outlined by the Secretary of State for War is as follows:

1. Air defense at home in cooperation with the Royal Air Force.
2. Internal security at home in cooperation with the Regular Army.
3. Seaward defense from coastal batteries.
4. Cooperation with the Regular Army in the field.
5. Officer production.

At present, the two Territorial Divisions employed on air defense of Great Britain comprises 76 batteries and 108 searchlight companies.

(*Canadian Defence Quarterly*, July 1938)

Navy:

The new aircraft carrier "Ark Royal" is the first large vessel to be completed for the Royal Navy which has been designed and built as an aircraft carrier in the light of past war experience. It has a displacement of 22,000 tons, a capacity of 72 aircraft, a speed of 31 knots and a main armament of sixteen of the new 4.5-inch quick firing high angle guns disposed in eight twin mountings. They are equally effective against surface or aerial targets and are provided with both forms of fire control.

(*United Services Review*, 22 September 1938)

Palestine:

On 9 October Great Britain ordered additional troops to Palestine to quell Arab—Jewish disorders in which fighting has reached a scale unprecedented since British and Turks fought in the Holy Land during the World War. The new contingent will bring to 21,000 men the force that is trying to put down a civil war which flared on 3 July 1937, when a royal commission recommended a partition of Palestine into Arab and Jewish states and a British mandate.

(*Associated Press*)

The British High Commissioner to Canada announced on 2 September that two big aircraft manufacturing plants will

*The equivalent of our National Guard.

erected in Canada to furnish war planes to Great Britain. One plant will be built near Montreal and the other near Toronto.

(*Associated Press*)

The British Army has adopted the Solothurn (S-18) 20-mm antitank gun. It really is nothing more than a machine gun, with a rate of fire of 500 rounds per minute, a penetrating power of one inch at a range of 500 meters.

With the adoption of the S-18 the antitank defense of British divisions will consist of 36 antitank guns and 144 rifles.

(*Wehrtechnische Monatshefte* No. 5, 1938)

Organization of armored troops:

Mechanized troops in the British Army belong to two different arms: The Tank Corps and the Cavalry.

The Tank Corps comprises 7 battalions and 8 independent companies serving in India. Of the 7 battalions, 4 belong to the 1st Mechanized Brigade and the remaining 3 are for direct support of infantry divisions.

The *1st Mechanized Brigade* consists of:

Headquarters (1 light car and 2 medium cars)
1 Reconnaissance platoon
1 Battalion of light combat cars
3 Battalions of mixed combat cars (light and medium).

The *Light Combat Car Battalion* consists of:

Headquarters (4 assault cars)
1 Reconnaissance platoon
3 Companies of 18 combat cars each. (Total 51 cars)

The *Mixed Car Battalion* consists of:

Headquarters (1 light, 1 medium and 2 support cars)
1 Reconnaissance platoon
3 Companies mixed, each consisting of 1 medium car, 1 light car platoon (7); 1 medium car platoon (5); 1 platoon direct support cars (2).

The *Mixed Battalion* consists of 49 cars as follows:

Light cars	22
Medium cars	19
Support cars	8

The 1st Mechanized Brigade consists of a total of 208 combat cars.

The British Cavalry at present consists of 22 regiments of which 18 are being mechanized (4 in India; 14 at Home), leaving only 4 horse cavalry regiments.

The peace program contemplates an equipment of 1500 armored vehicles.

(*Deutsche Wehr* No. 7, 1938)

The New Territorial Army:

The reorganization of the Territorial Army contemplates the creation of the following new units:

Light tank regiments
Antitank regiments
Antiaircraft regiments
Tank battalions.

In addition, there will be organized three motorized divisions, the characteristics of which will be mobility and firepower. A motorcycle battalion will be attached to each division.

Antiaircraft units will have an effective strength of 90,000 men. The infantry will be provided with heavy and light machine-gun battalions. The artillery batteries will have eight guns instead of four. A new unit will be created: The motorcycle battalion; three such battalions will be organized.

The infantry brigade will, in the future, consist of three battalions, like the regular army, instead of four. A division will have three brigades instead of four as at present.

In short, there will be nine complete divisions — equal in organization to those of the regular army — three motorized divisions, one mobile division, and five antiaircraft divisions — making a total of eighteen divisions as compared with fourteen of the Haldane Plan of 1914.

(*La France Militaire*, 17 October 1938)

GREECE

The army is organized into 4 army corps and comprises 13 infantry divisions and 1 cavalry division. The effective strength in 1937 was 5,187 officers and 65,000 other ranks.

The navy has 12 destroyers, 9 torpedo boats, 4 mine layers, 6 submarines and a variety of miscellaneous craft.

(*Statesman's Year Book*, 1938)

GUATEMALA

The composition of the army is as follows:

Infantry: 13 companies, including 4 machine-gun companies
Cavalry: 1 squadron
Artillery: 7 mountain and 2 field batteries.

In addition, there are 7 militia battalions and 7 volunteer companies.

(*Armaments Year Book*, 1937)

HAITI

The armed forces of the Republic of Haiti, established for the internal and external security of the Republic, are known as the "Haiti Constabulary," consisting of approximately 180 officers and 2,600 other ranks.

(*Armaments Year Book*, 1937)

HUNGARY

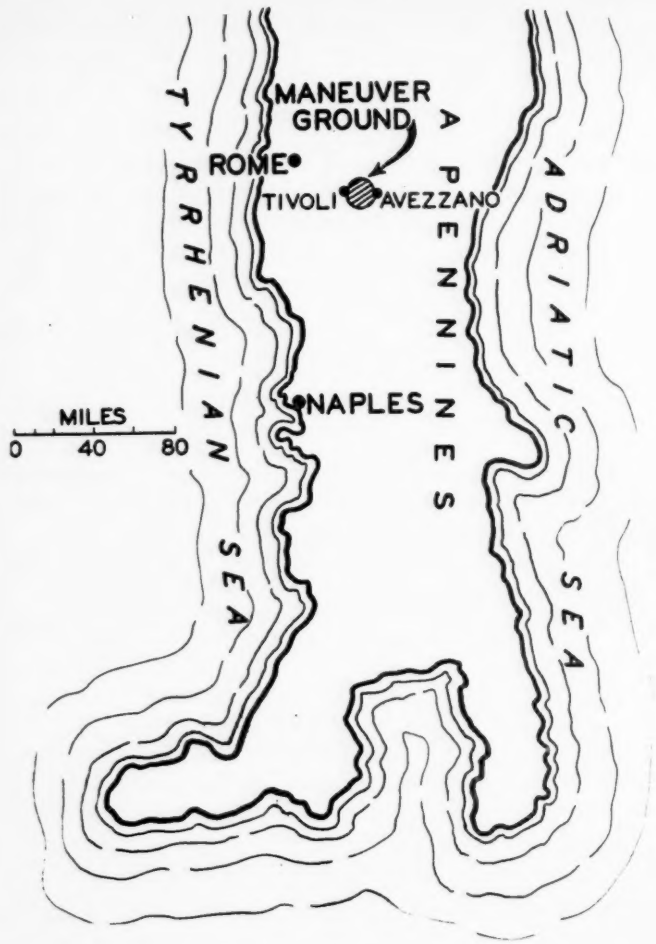
Hungary's share in the spoils of Czechoslovakia consists of 4,875 square miles of southern territory and a gain in population of 800,000.

ITALY

Italy held its only large scale maneuvers on 7-11 August 1938, in the mountains about 20 miles northeast of Tivoli. The terrain was very rough and rugged and facilitated the defense. There was only one good two-way road to serve the attacking troops.

The troops engaged were those of the VIII Army Corps (Rome), reinforced by a few additional troops, with a total strength of approximately 1,380 officers, 22,100 men, 3,810 animals and 1,660 motor vehicles.

The maneuvers were designed to test the organization, armament, offensive power and maneuverability of the two



types of "binaria"* divisions (the "Torino" and the "Cacciatori delle Alpi") rather than a tactical exercise for the higher commanders. The plan of the maneuver was staged in two episodes:

(1) Advance guard action of the Blue Corps against Red rear guard.

(2) Attack of the Blue Corps against the Red organized position.

The Blue Forces consisted of three divisions and corps troops. All divisions were "binaria," of but two types. They were respectively "Torino," "Cacciatori delle Alpi" and "Aquila." The first was at full strength, the second at peace strength and the third was assumed.

The Torino Division.—The chief difference between the Torino Division and the normal infantry division may be summed up as follows:

(a) Two infantry regiments instead of three.
(b) A reduction in the number of machine guns.
(c) An increase in the number of machine rifles, mortars and antitank weapons.
(d) A reduction in the divisional artillery.

Although the division is not motorized, its employment as an "auto transportable" division is contemplated.

Its approximate strength is 500 officers and 12,800 enlisted men. The total number of vehicles required to transport men and animals is 1,017.

*Two infantry regiments.

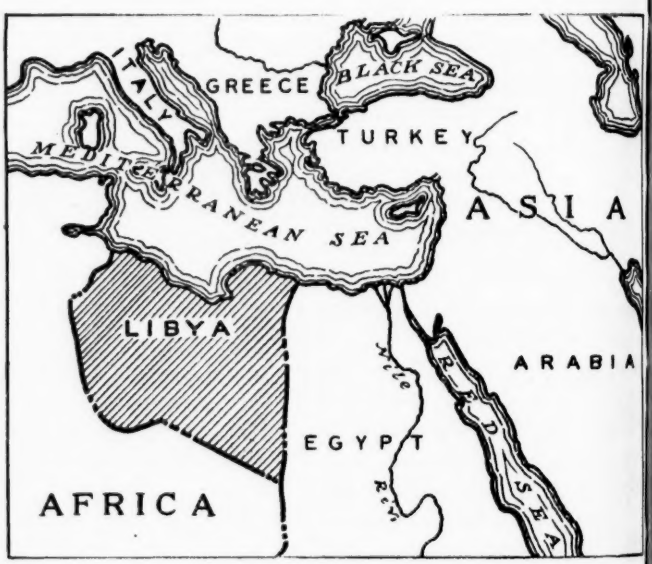
The Cacciatori delle Alpi Division.—This organization is similar to the one tried out during the 1937 maneuvers. It consists of:

Headquarters
Two infantry regiments of three battalions each and one accompanying battery 65/17-mm
One machine-gun battalion of three companies of 12 guns each
One artillery regiment of three battalions (one 75/27, one pack 75/13, one 100/17) and one 20-mm anti-aircraft battery
One engineer company
One signal company
Service troops.

The composition of the corps troops is interesting in that they have been considerably increased and now form an essential requirement for the development of the fighting capacity of the divisions. The Italians claim that by transferring weight from division to corps, the Higher Commander can achieve greater elasticity in the operation and maneuverability of the corps as he can allot the necessary reinforcements to the various divisions as required by the situation.

Since, as already stated, the maneuvers were drawn primarily for the purpose of testing the organization of new types of units, there is little to be gained from the viewpoint of the tactical principles involved. For this reason a study of the maneuvers has been omitted.

(*Foreign Press*)



LIBYA — ITALY'S COLONY IN NORTHERN AFRICA

On 28 October 1938, 20,000 peasants mainly drawn from congested rural districts were sent to government farms on the Libyan coast. Heads of the families were either veterans of the Ethiopian campaign or staunch Fascist members. Italy's Libyan colonization program calls for migration of another 20,000 persons in 1940.

(*Press Reports*)

JAPAN

During 1937, Japan put into service 93 naval units — all over 1,000 tons each — with a total tonnage of 409,000. Among the

salient features of these ships were their considerable speed and general use of the Diesel, direct drive engine.

(*Journal de la Marine Marchande*)

MEXICO

Mexico was fourth in the size of American direct investments, with a total of $479,000,000 at the end of 1936. This represents a decline of $203,000,000 or about 30 per cent of the 1929 estimate. The sharp reductions in the value of petroleum and agricultural investments were most significant. Manufacturing and distribution were the only industrial groups that increased and they but slightly.

(*Bulletin of the Pan American Union*, September 1938)

NETHERLANDS

Holland is strengthening her coast defense and accordingly changes are being made in the fleet distribution. To aid in the restriction of entrances to harbors, 4 mine layers, 3 transports for mines, 24 mine sweepers, six 1,200-ton gunboats, 1 gunnery school ship, a few torpedo motor boats, and several auxiliaries will be detailed for coast defense.

(*Marine-Rundschau*)

NICARAGUA

In 1937, the National Guard consisted of 222 officers and 2,800 enlisted men, besides 4,000 in the trained reserve. Period of enlistment, three years. During period of enlistment, soldiers cannot vote.

(*Statesman's Year Book*, 1938)

NORWAY

In 1936 the Norwegian Army adopted the light mixed brigade as the basic unit instead of the division.

The new unit has nine light artillery groups with a total of 24 horse-drawn battery and 2 mountain artillery groups.

The antiaircraft artillery consists of one group of three mobile batteries and 14 groups of fixed batteries.

The armament of the light artillery consists of a 120-mm howitzer, with a maximum range of 11,500 yards.

The 105-mm gun of the heavy field artillery has given excellent results in maneuvers, particularly as regards accuracy.

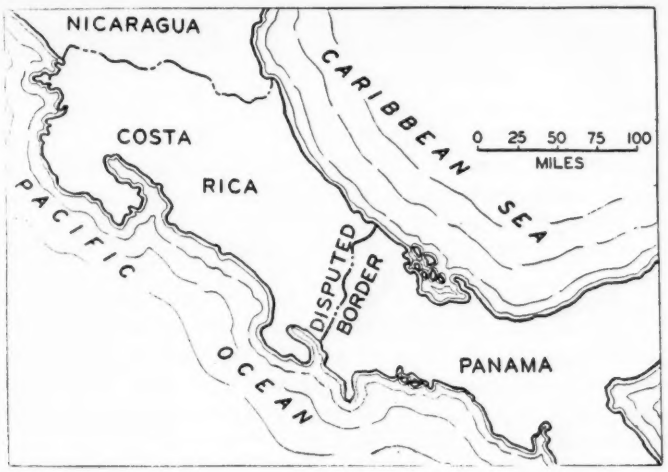
(*Artilleristische Rundschau* No. 8, 1938)

The plans of the new Norwegian destroyers have been accepted. The new ships will displace 1,170 tons and have a speed of 32 knots. The armament will consist of three 120-mm rapid fire guns, two 40-mm antiaircraft guns, two 12.7-mm machine guns and two 21-inch torpedoes. These ships are to be completed in four years.

(*Sjovasendt and Aftonbladet*)

PANAMA

The boundary dispute between Panama and Costa Rica has reached a stalemate. The Costa Rican Congress failed to ratify the Boundary Treaty which had been signed by the diplomatic representatives of the two countries on 26 September 1938.



DISPUTED FRONTIER BETWEEN PANAMA AND COSTA RICA

The Panamanian Congress has been asked to set aside the sum of one million dollars for the purchase of arms and munitions. Panama has no regular army, but it has a police force of 1,000 men well equipped with rifles and machine guns.

(*La Prensa*)

PERU

The Pan American Union is an international organization created and maintained by the twenty-one American Republics: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, the United States, Uruguay, and Venezuela. Originally known as the International Bureau of the American Republics, it was established in 1890 in accordance with a resolution passed April 14 of that year at the First International Conference of American States, held at Washington in 1889-90, and presided over by James G. Blaine, then United States Secretary of State. Its work was greatly expanded by resolutions of the Second Conference, held at Mexico in 1901; the Third, at Rio de Janeiro in 1906; the Fourth, at Buenos Aires in 1910; the Fifth, at Santiago, Chili, in 1923; the Sixth, at Habana, Cuba, in 1928; and the Seventh, at Montevideo, Uruguay, in 1933. April 14 is celebrated annually throughout the Americas as Pan American Day.

The Eighth Pan American Conference will be held in Lima, Peru, 9 December 1938.

(*Bulletin of the Pan American Union*)

POLAND

The Teschen and Jablunkau districts awarded to Poland comprise about 400 square miles and have a population of 240,000.

Cavalry:

The army cavalry consists of independent brigades, which in time of war can be grouped into cavalry corps. The brigade consists of:

From 3 to 5 cavalry regiments of 4 squadrons each
1 machine-gun squadron

1 signal squadron
1 armored car or light armored combat car reconnaissance squadron
1 pioneer platoon
1 antitank squadron
1 or 2 groups of light artillery of 3 batteries each
1 cyclist battalion (eventually)
Service troops.

(*Deutsche Wehr*, 19 May 1938)

On 27 April, a pact was signed between England and Poland, whereby Poland assumed the obligation of joining the London Treaty until 31 December 1942. Agreement was reached on maximum tonnage, maximum caliber of guns on special classes of ships and on exchange of information concerning the building of new ships.

(*Morze*)

PORTUGAL

The Portuguese Army is armed with Mauser-Vergueiro, and Lee-Enfield rifles; Cavalry, Mannelicher carbines; Artillery, 75-mm Schneider-Canet guns, 90-mm Krupps, 70-mm Mountain Schneider-Canets, 75-mm antiaircraft guns, .303 Berthier, Vickers and Madsen machine guns.

In 1936, the air force had 95 planes.

(*Statesman's Year Book*, 1938)

RUMANIA

The Rumanian Army consists of 7 army corps plus 1 corps of light infantry, with a total of 22 infantry divisions, 2 light infantry divisions and 4 cavalry divisions.

The armed forces: land, army, air force and the navy are under the Ministry of National Defense.

(*Armaments Year Book*, 1937)

RUSSIA

Far Eastern Fleet:

There are no large fighting ships stationed in the Far East, the most powerful fighting craft are submarines, of which there are about 90, including 40 belonging to coast defense. The latter were built between 1931 and 1934 and have a displacement of about 250 tons, a crew of from 25 to 30 men and an armament of from 2 to 4 torpedo tubes. The largest submarines of the "Dekabrist" type, of which there are 20, are intended for operations on the high seas; they have a displacement of from 900 to 1300 tons, surface speed 15-17 knots, submerged speed 9-10 knots and an armament of from one to two 3-inch guns.

There are at least 80 coastal motor boats with a speed of 45 knots and armed with two torpedo tubes, machine guns and depth bombs. They will be of great service in the protection of the coast with its numerous bays and islands. There are several gunboats built in Italy, and a number of auxiliary ships, such as transports, mine planters and the like.

The most powerful fighting ships in the Far East are large destroyers, their total number is estimated at 18; in addition there are a number under construction at Konsomolsk.

The Amur Flotilla forms part of the Pacific Fleet, but is intended for independent operations. It consists of large and small gunboats, monitors, small aircraft carriers and patrol vessels. There are about 10 gunboats of 1,000-ton displacement armed with 4.7 guns, and at least 10 gunboats of 200 tons. Many of these ships were built at Konsomolsk in 1936.

RUSSIAN NAVAL BASES IN THE FAR EAST

The principal naval base is Vladivostok, the forts of which have been modernized during recent years and are armed with 12-inch and 14-inch guns. A large number of destroyers, submarines, coastal motor boats and hydroplanes are stationed at this base. The second largest naval base constructed from 1932 to 1935 is Konsomolsk which has the largest shipbuilding yards in the Far East. Petropavlosk on Kamchalka and Possut Bay near the Korean Border are auxiliary naval bases.

(The *Vozrozhdenie*, Russian emigrée newspaper published in Paris)

Tanks:

According to the Polish Journal *Nowa Prawda*, Russia has 5,375 tanks of the following types:

Type	*Weight (Tons)*	*Armor (mm)*	*Armament*	*Speed (M.P.H.)*	*Crew*
T-27	7.0	9.0	1 machine gun	28	2
T-26A	6.5		2 machine guns in 2 turrets	22	3
T-26W	6.5		1 47-mm gun 1 machine gun		
M-23&MS	7.4	6.5	1 37-mm gun 1 machine gun	12	3
MT-33 (amphibian)	3.0		1 machine gun	45 (land) 7 (water)	
R-34	10.0		1 47-mm gun	62	3
M-1	33.0	22.3	1 75-mm gun 3 heavy machine guns	28	6
M-2	37.0	25.0	1 75-mm gun 2 37-mm guns 2 machine guns	18	12

The above types of tanks are distributed among the four military districts as follows:

Type	Leningrad	White Russia	Kiev	Charkow
T-27 (Vickers-Carden-Lloyd)	200	300	350	350
T-26 (Vickers Armstrong)	150	150	150	150
T-26W (Vickers Armstrong)	150	150	200	200
M-23&MS (Russian Renault)	150	150	150	150
MT-33 (Russian Vickers, amphibian)	200	250	150	150
R-34 (Russian Christie)	150	175	150	150
M-1 (Heavy Tank)	50	100	75	75
M-2 (Heavy Tank)	50	100	75	75

(*Deutsche Wehr*, 3 March 1938)

SALVADOR

Two native aviation officers who had been studying in Italy returned on October 3d by way of the Panama Canal, bringing with them six Caproni fighting planes. They were accompanied by Captain A. Cipolla of the Italian Army.

Salvador also received recently three light Fiat tanks and tractors convertible into armored cars equipped with machine guns. A group of Italian mechanics arrived with the tanks.

(*New York Times*, 4 October 1938)

SWEDEN

The Air Force, which constitutes a third defense force independent of the Army and Navy, is now being reorganized and strengthened in accordance with the plan adopted in 1936. It has its own Commander-in-Chief who is directly subordinated to the King.

(*Armaments Year Book*, 1937)

TURKEY

The Turkish Navy is at present of predominantly German and Italian design and construction. As a result of the agreement with Turkey under which she is granted £16,000,000 it is expected that British shipyards will receive most of the Turkish naval orders in the near future.

(*United Services Review*)

URUGUAY

The country is divided into four military areas; to each is allotted a brigade comprising infantry, cavalry and artillery units.

Officers are promoted either by seniority, competition or selection.

(*Armaments Year Book*, 1937)

VENEZUELA

The Army is organized into 9 brigades, consisting in all of 43 infantry battalions.

The artillery consists of 5 fortress and coast artillery groups, one regiment of field artillery and one machine-gun company.

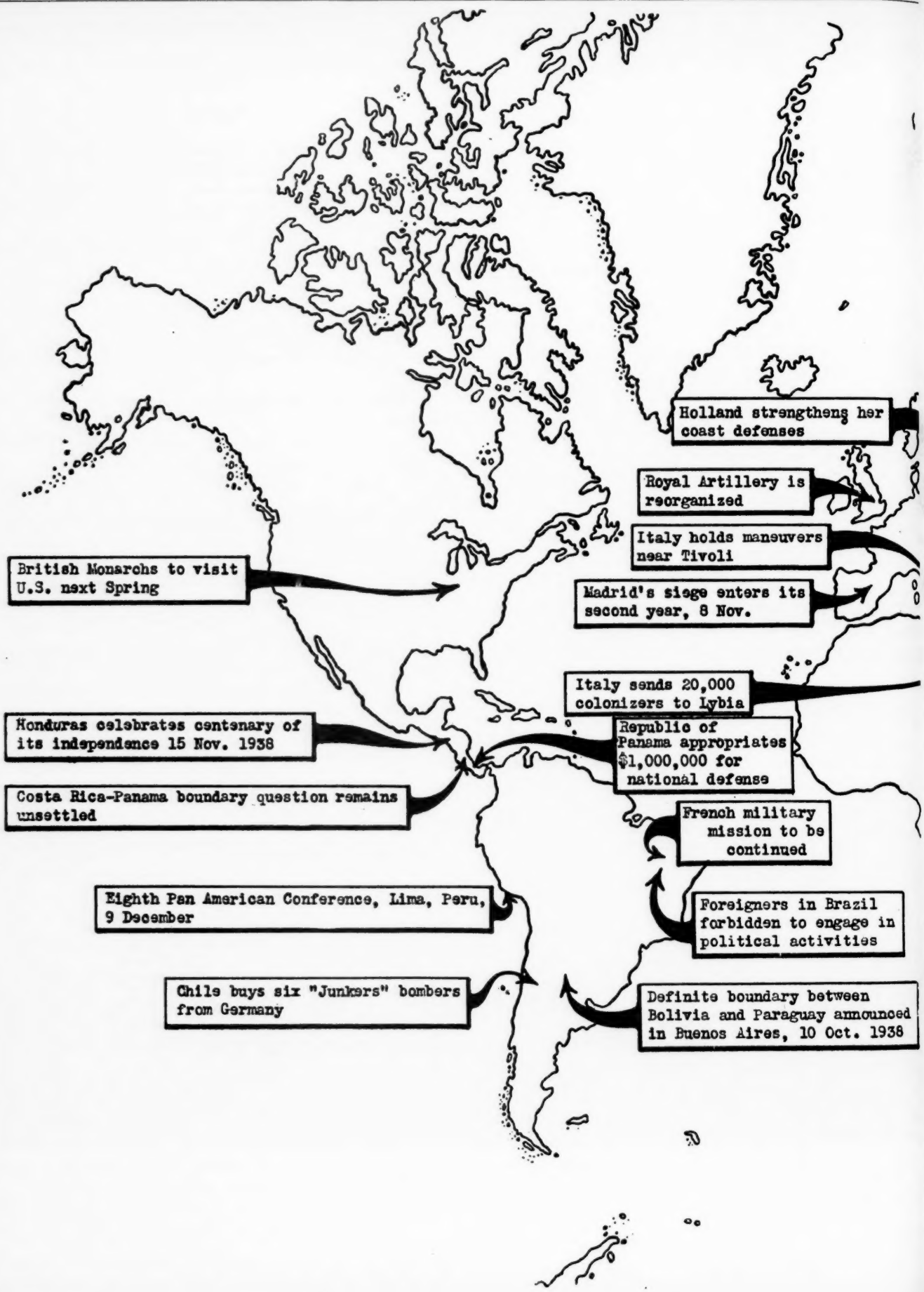
The cavalry consists of one regiment.

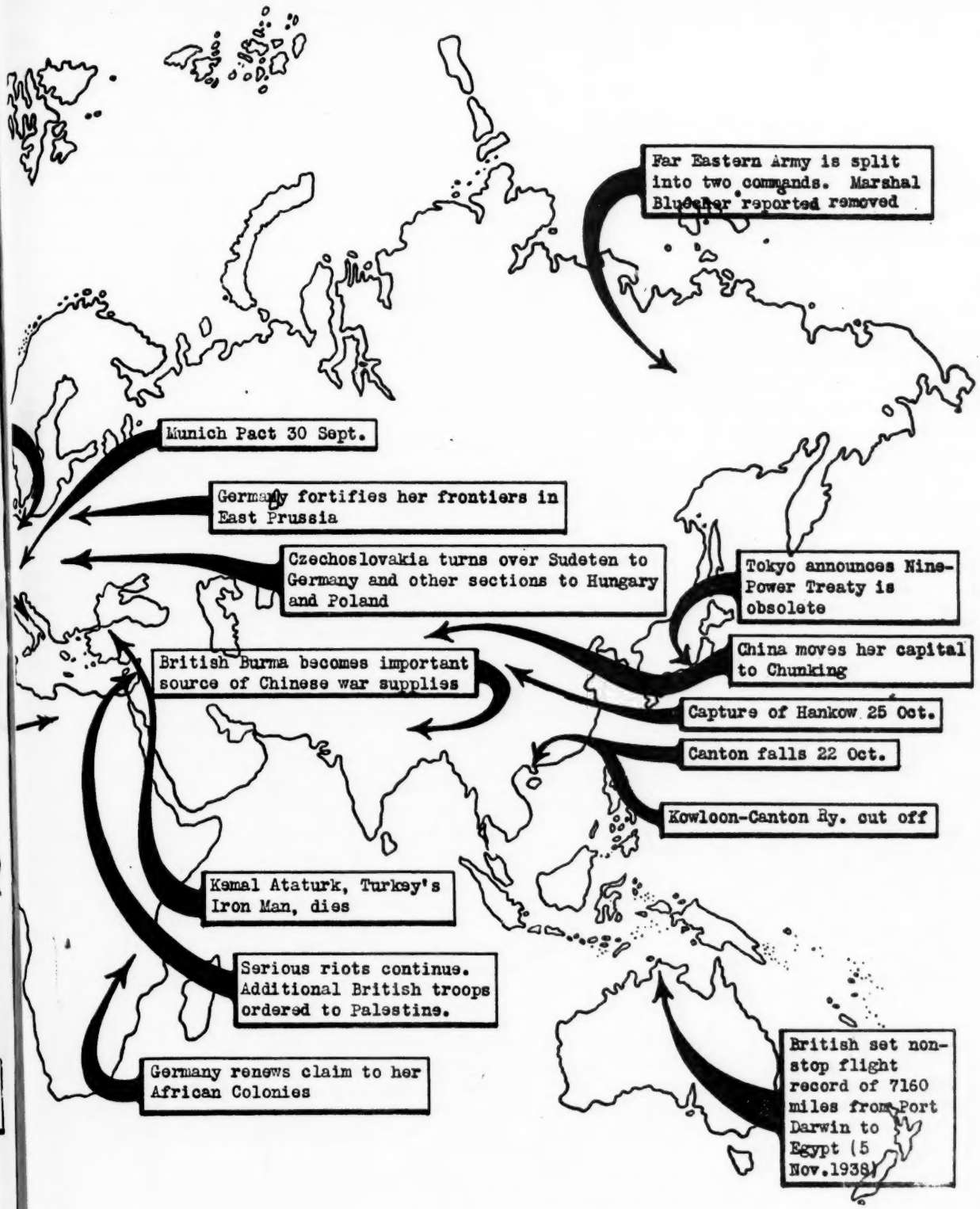
The air force has 14 planes.

(*Armaments Year Book*, 1937)

U. S. Army Air Corps.

A Chase for Food From the Sky


Holland strengthens her coast defenses
Royal Artillery is reorganized
Italy holds maneuvers near Tivoli
British Monarchs to visit U.S. next Spring
Madrid's siege enters its second year, 8 Nov.
Italy sends 20,000 colonizers to Lybia
Honduras celebrates centenary of its independence 15 Nov. 1938
Republic of Panama appropriates $1,000,000 for national defense
Costa Rica-Panama boundary question remains unsettled
French military mission to be continued
Eighth Pan American Conference, Lima, Peru, 9 December
Foreigners in Brazil forbidden to engage in political activities
Chile buys six "Junkers" bombers from Germany
Definite boundary between Bolivia and Paraguay announced in Buenos Aires, 10 Oct. 1938


Far Eastern Army is split into two commands. Marshal Blucher reported removed
Munich Pact 30 Sept.
Germany fortifies her frontiers in East Prussia
Czechoslovakia turns over Sudeten to Germany and other sections to Hungary and Poland
Tokyo announces Nine-Power Treaty is obsolete
China moves her capital to Chunking
British Burma becomes important source of Chinese war supplies
Capture of Hankow 25 Oct.
Canton falls 22 Oct.
Kowloon-Canton Ry. cut off
Kemal Ataturk, Turkey's Iron Man, dies
Serious riots continue. Additional British troops ordered to Palestine.
Germany renews claim to her African Colonies
British set non-stop flight record of 7160 miles from Port Darwin to Egypt (5 Nov.1938)

The Spanish Civil War

GENERAL SITUATION AS OF 1 NOVEMBER 1938

THE SPANISH CIVIL WAR

The military situation in Spain finds the two opposing armies deadlocked, neither side having been able to obtain a clear-cut victory on the battlefield.

There have been no outstanding Insurgent successes since the brilliant drive to the sea early in the spring, which ended in the capture of Vinaroz last April. The Insurgents have succeeded in widening the wedge thus established between the two Loyalist sections until it now stretches some seventy-five miles from the mouth of the Ebro to the south of Nules. While the Insurgents have gained some local victories southeast of Teruel, their drive has lacked the fire of their earlier efforts.

The Insurgent drive against Valencia encountered stubborn resistance once it ran into the difficult coastal range of Sierra Espadan. Thus since mid-summer despite heavy fighting, there has been little actual gain by either side. On 7 November the Insurgents occupied Mora del Ebro, on the west bank of the Ebro in Northeastern Spain. This town controls a highway and a railway to the port of Tarragona forty miles to the northeast. The Insurgents have now recaptured all the ground that had been taken by the Government forces in their surprise counteroffensive last July.

The difficult and rugged terrain has produced war weariness on both sides. Franco has been bombing methodically the ports of Valencia, Gandia and Cartagena through which Madrid receives its supplies, while Barcelona and Cerbere, the northern base near the French border, have also been subjected to numerous air raids. The Government is suffering from a shortage of food supplies.

TRANSPORTATION

As the war reaches a state of attrition, the question of transportation assumes paramount importance.

The Spanish railroad system comprises (see General Situation Map) about 12,000 miles of track, divided among four large companies and several smaller ones. The principal companies are:

(1) The Northern Railroad, with about 2,000 miles of track.

(2) The Madrid—Zaragoza—Alicante Line, with approximately the same length of track.

(3) The Western Railroads, entirely nationalized and under government control since before the Civil War.

(4) The Andalusian Company also nationalized in the spring of 1936.

The last two companies are almost completely under Insurgent control.

The government controls the railroad section Barcelona—Lerida and the sections Madrid—Valencia and Madrid—Alicante—Cartagena.

At present over sixty per cent of the Spanish railroads are in the Insurgent zone.

Franco continues to hold his superiority in artillery, at sea and in the air and is also slightly superior in other war equipment. There have been rumors for some time that Franco has been making preparations for large scale operations which may begin any day now. Insurgent aviation has been harassing the government lines and bombing concentration and supply centers, while the land forces have been active trying to improve their positions. These steps have been planned in order to break up the morale of the Government forces, weaken their lines and create the "soft spot" for the decisive blow. It is believed that the Insurgents' next thrust will be along the Ebro River with Barcelona as the objective and that Franco will strike with decision and energy with a view to obtain a crushing victory.

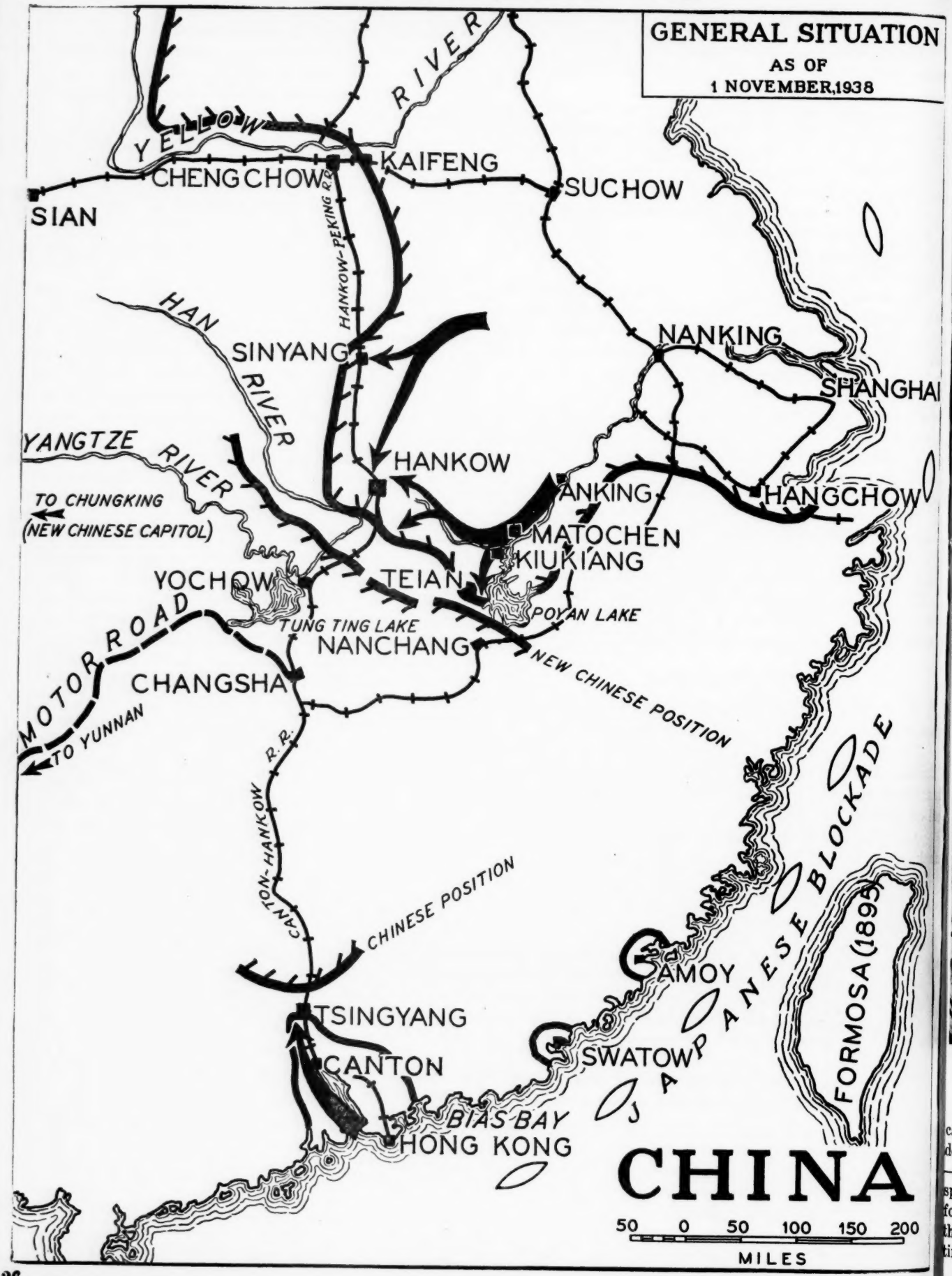
There is a reported food shortage in Loyalist Spain, particularly in Barcelona and Madrid. Should Franco succeed in obtaining belligerent recognition by the powers in return for the "token" evacuation of 10,000 Italians, the situation of Government Spain would become precarious. This would mean the sealing of the French—Spanish frontier and therefore, the end of all Government hopes of obtaining war supplies from abroad. War-worn, weary, tired and ill-fed, Government Spain could not survive. Foreign observers predict that, by next spring at the latest, this internecine struggle which is wrecking homes, farms, industries, and destroying the best blood in Spain, will be ended with an Insurgent victory.

"If we judge Spain on the basis of past performances the civil war takes on a new significance. It is the same old conflict that began when Tarik and his Berbers defeated the Visigoths at Algeciras. It has been raging with intermittent truces ever since. On the one side are the men of Gothic-Celt-Iberian culture; on the other side Arab-Berber-Iberian blood and alien influences.

The fighting broke out because Spain seems unable to maintain internal peace. Fascism and Communism merely gives the war freshness and variety."

—Commander L. F. Safford, U. S. Navy.—U. S. Naval Institute Proceedings, June 1938.

The Sino-Japanese War



THE SINO-JAPANESE WAR

THE CAPTURE OF HANKOW

The Yangtze River campaign to capture Hankow was vigorously conducted after the Yellow River flood had swamped the Japanese Army and stopped the advance on Chengchow, the junction of the Peiping—Hankow and the Lung-Hai railways. In compliance with orders from Tokyo, the drive was carried on almost beyond human endurance, the men had to fight in 110 degree heat and in bitter cold, over difficult terrain and against stubborn resistance from the Chinese. Slowly, steadily, but relentlessly, the invader's war machine advanced, the Japanese Navy having an opportunity to compete with the Army for glory. The river defenses consisting of booms, mines and forts were gradually smashed, the Navy taking the inadequately defended booms at Matang and Kiukiang and the stronger ones at Wusueh and Matowchen with little difficulty. The last natural river defenses were stormed and captured on 29 September.

From the north a mechanized army of 90,000 men captured Sinyang (General Situation Map) on the Hankow—Peiping railway, cutting off the railroad at this point. Then in lightning thrusts by land and river, Japanese army and naval units raced to be the first to enter the city, in a pincer-like movement, hoping to trap the main Chinese forces. Finally, on 25 October 1938 Hankow was captured. Chiang Kai-shek had learned a bitter lesson at Shanghai where he sacrificed his crack divisions in an effort to stop the well equipped Japanese Army and he announced, accordingly, his unwillingness to risk annihilation of his main forces in the Hankow area by making a bloody last-ditch defense.

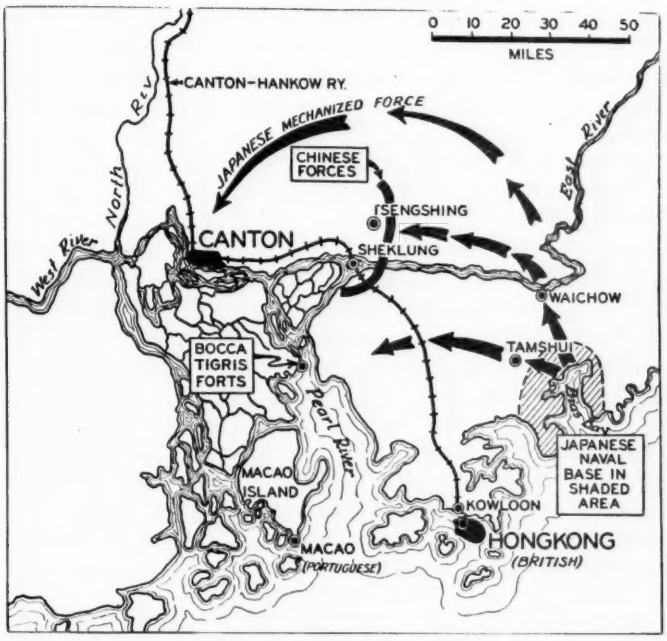
World Wide Photo.

JAPANESE TROOPS ADVANCING ON HANKOW

The major part of the Chinese Army at Hankow escaped intact, retreating to the southwest taking up a new defense line extending along the Han River—Puchi—Teian—Lake Poyang. The terrain is rugged and difficult, interspersed with lakes and swamps, making it very suitable for defense. The Chinese, under General Li Tsung-jen, the hero of Taierchwang—China's one victory—are resisting the invader, who is making desperate efforts to capture Nanchang, the Chinese air base. The present mission of the Chinese forces is to prevent any further Japanese conquest beyond Hankow.

Before leaving the city, the "Scorched Earth" policy was applied, great fires burned throughout the night and the Peiping—Hankow railway terminus, the arsenal and many other buildings and plants were demolished. Eighty per cent of Chinese-owned machinery and metal had already been moved to the interior, so that the Japanese were left in possession of a city of ruins instead of a well known trade center.

THE CAPTURE OF CANTON



THE CAPTURE OF CANTON

On 12 October 1938, Japanese forces landed at Bias Bay, famed hideout of Chinese pirates twenty miles northeast of Hong Kong, with the mission of severing the Kowloon—Canton railway and occupying the city of Canton and the surrounding rich coastal areas. On the 13th, a second large scale landing was made just northeast of Britain's island outpost in the Far East. By the end of the week another force had landed on the opposite side of the Pearl River delta, cutting off the highway from Portuguese Macao toward Canton.

This landing force, termed as Japan's "model army" of invasion, consisted of aproximately two divisions (40,000 men), well equipped, and after landing, lost no time in stabbing deep into Kwantung Province under cover of one of the most intensive aerial campaigns in the history of modern warfare.

A powerful motorized column pressed steadily toward Tsengshing, about fifty miles east and slightly north of Canton. This force was formidably equipped with cannons and tanks and quickly captured Waichow, brushing aside the poorly trained Chinese militia which fought mostly with machine guns and rifles.

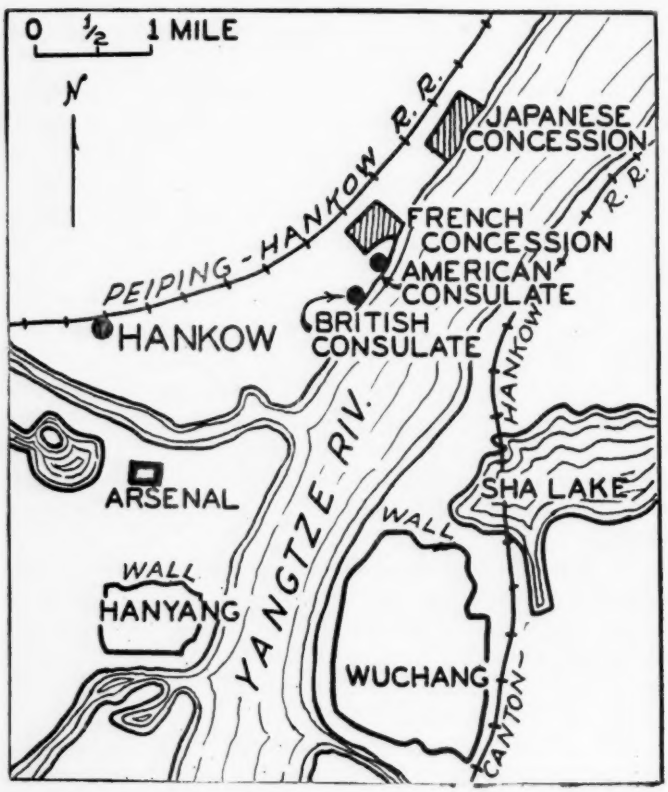
The second Japanese force cut off the Hong-Kong—Canton railway fifteen miles north of Hong-Kong and pushed southwestward over some fifteen miles of Pearl River delta

country towards the Bocca Tigris (Mouth of the Tiger) forts. These Chinese fortifications on two small islands lie opposite each other across the river delta and are within easy artillery range from shore.

The third Japanese force closed in on Shekung, one of the four islands in the East River crossed by the Canton—Kowloon railway. This column joined the north column for operations against Canton.

It had been expected that the Chinese would put up a fight for Canton and that strong resistance would be encountered along the line Tsengshing-Shekung, but apparently the Chinese chose not to do so and the Japanese completely occupied Canton on 22 October, having advanced 125 miles in ten days without having fought a single major battle. The swift driving Japanese mechanized force, making a wide envelopment to the north, entered Canton virtually without having fired a single shot. Past experience has shown that, even where the Chinese are defending tenaciously, they allow their attention to be fixed by a frontal attack and are surprised by a turning movement. The appearance of such a force on the flank causes the collapse of the defense.

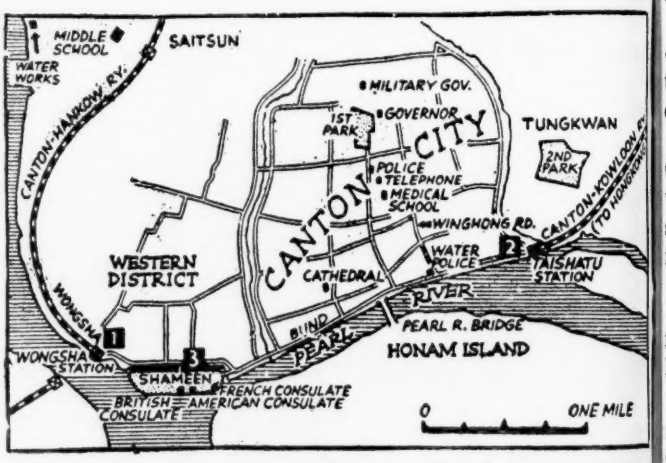
The easy capture of Canton has been attributed to several reasons. It is said that Chiang Kai-shek had withdrawn so many troops from South China in the belief that the Japanese would not attack Canton until after the fall of Hankow, that the Japanese offensive caught him by surprise and it was impossible to do more at Canton than to carry out the "Scorched Earth" policy, dynamiting the $8,000,000 Pearl River bridge, the principal public buildings, factories, and utility plants. The enemies of General Yu Han-Mou, Governor of Kwantung Province, who commanded the Canton defenses, accuse him of treachery or neglect. During the fifteen months of the present war, 40 defeated Chinese Commanders have been executed and it seems very likely that, after the fall of Canton, this number will be increased, for while the Japanese had an immense superiority in mechanical equipment, the Chinese were overwhelmingly superior in numbers and failed to show the fighting spirit and stubborn resistence which have cost the Japanese so many lives in the Yangtze Valley, where every mile of ground has been gained at a heavy cost to the invader.



THE CITY OF HANKOW

HANKOW AND CANTON

Hankow is a great commercial city known as the "Chicago of China" because of its position midway between North and South China. Situated at the mouth of the Han River, the longest tributary of the Yangtze River, it has become the principal Yangtze port. The hinterland of Hankow which the Yangtze drains contains about 200,000,000 inhabitants. Special river steamers connected the upper reaches of the Yangtze with the ocean via Hankow, and the Han also is navigable for 300 miles above Hankow, furnishing the chief route to Shensi Province and northwest China. The river trade includes tea, cotton, silk, timber, wood-oil and hides. Aside from its importance as one of the chief centers of the Chinese iron and steel works, Hankow is an important center of textile manufactures. There are a number of weaving mills in the city and surrounding districts. There is a large industry in rice mills, based on local production of rice, cement works, flour mills and a number of distilleries. Hankow is also a great banking center.



CITY OF CANTON, CAPTURED BY THE JAPANESE 22 OCTOBER 1938

Canton had a population of 860,000 before the Japanese invasion of South China and was the principal gateway into China for military supplies. Its position at the head of the delta formed by the Sikiang and Pei rivers makes it the natural outlet of rich South China. Canton itself had been in existence before the Christian era and was known to the traders of the Roman Caesars. It was in Canton that Dr. Sun Yat Sen started the movement which led to the overthrow of the Manchu dynasty in 1911. On June 3, 1936, the Cantonese government sent an ultimatum to the Nationalist Government at Nanking demanding that it declare a national war against Japan.

The fall of Hankow has placed in Japanese hands not only a great deal of the remaining Chinese industries, but also a great center of river and railroad communications

The fall of Canton, however, is the greatest victory won by Japan and the most disastrous defeat sustained by China since the capture of Suchow last May. The loss of the city itself is of no great importance; in fact, it would only serve to keep several thousand Japanese soldiers from the front. However, the loss of the railways and waterways between Canton and Hong Kong through which China has been importing the bulk of her munitions and equipment is a severe blow which may prove to be the decisive turning point of the war. The loss of this arms distributing point and operating base and with it the loss of what little customs revenue was left, may radically alter the character of the Chinese defense, and Chiang Kai-shek may decide to oppose the Japanese only at strategic points, attempting to draw the invader into the vast, wild stretches of Southwestern China.

COMMENTS

Having conquered by force of arms most of the important and strategic points in China, it has been officially stated in Tokyo that it may become necessary to denounce the Nine-Power Treaty. This pact, signed in Washington on February of 1922, pledged the contracting parties to do four things:

1. To respect the sovereignty, the independence and the territorial and administrative integrity of China.
2. To provide the fullest and most unembarrassed opportunity to China to develop and maintain for herself an effective and stable government.
3. To use their influence for the purpose of effectually establishing and maintaining the principle of equal opportunity for the commerce and industry of all nations throughout the territory of China.
4. To refrain from taking advantage of conditions in China in order to seek special rights or privileges which would abridge the rights of subjects or citizens of friendly states, and from countenancing action inimical to the security of such states.

It appears that Japan is seeking an enormous market for her imports and a great source of raw supplies. The Nine-Power Treaty seems to stand in the way.

The Japanese plan contemplates the dispersion of Chinese troops and the occupation of the entire length of the Canton-Hankow railway. It is then planned to establish a central Chinese Government under Japanese auspices, that would absorb the Peiping and Nanking Governments, under the nominal leadership of a retired Chinese war lord. The prospective head of this new government is 60-year old Wu Pei-fu, who has been recommended by Japan's ace political manipulator, Kenji Doihara, the "Lawrence of Manchuria." This plan has the approval of General Terauchi, commander of the Japanese forces in North China. In 1927, Wu, as Commander-in-Chief of the allied anti-Red Army, was defeated at the hands of National Revolutionary Army under Generalissimo Chiang Kai-shek, whose government the Japanese hope to supplant. Some time ago Doihara advanced Wu the sum of 1,000,000 yen ($277,000) for the promotion of a new regime. Wu has now promised Japan unqualified economic cooperation and an anti-Communistic policy.

Since the undeclared war began some sixteen months ago, China has lost a staggering amount of territory to the invaders. Japan is now in possession of every major port on the Chinese coast, and practically all of the major lines of communication and the richest cities and towns through thirteen provinces, a total of about 575,000 square miles, with a population of about 200,000,000, or nearly half the population of China. Military observers point out, however, that Japan's occupation is only technical. The invading army does not even command lines of communication in territory it conquered fifteen months ago. Japanese penetration has been only along major railways, highways and rivers linking the principal cities, leaving vast interior areas unoccupied and unconquered. Almost nowhere in China can a train be dispatched from one important center to another without a Japanese guard. No motor trucks can be sent with supplies except in large convoys. The Peiping-Hankow railway suffers so many interruptions caused by guerrillas that for practical purposes it may be said that this line does not exist. Companies for the development of the conquered territory have been formed but they cannot operate because the country is still overrun by Chinese troops. The Japanese buy one group today that stays loyal only while watched. They have to fight in areas which they had pacified sixty days before. Chiang Kai-shek has offered a substantial reward for any Japanese soldier captured alive; so, sentries are disappearing mysteriously from their posts and all sorts of havoc is taking place—so cleverly done that the source cannot be discovered—within the so-called "conquered cities." Thus, the war is becoming tremendously costly and expenditures are piling up. It is estimated that Japan will have to maintain an army of 750,000 men, which must be fed, and supplied with munitions and equipment imported from Japan. Until Japan, therefore, is able to withdraw the major part of her expeditionary forces after having wiped out completely all Chinese resistance, then and only then will she be able to say that the war has been won.

The fall of Canton and Hankow led the Japanese to believe that Chinese morale was breaking down. There is no evidence as yet that the Chinese are exhausted, demoralized and ready to quit and until these conditions occur, it cannot be said that China is conquered.

NOTE:—As we go to press the Japanese have captured Yochow and have advanced to within 55 miles of Changsha.

Foreign Military Digests

Digests of important articles from foreign military periodicals; the remaining articles for each magazine are listed in Catalog of Selected Periodical Articles.

MEANS OF TRANSPORT IN THE SERVICE OF SUPPLY

["Die Beförderungsmittel im rückwärtigen Dienst." By W. Paschasius. Condensed from *Die Kraftfahrkampftruppe*, June 1938.]

By Captain H. N. Hartness, *Infantry*

Evacuation of Wounded by Camel in S. W. Africa

In considering the means of transport in the service of supply, the reader should remember that this service is a two-way proposition: (1) forward, to supply the necessary food, ammunition, equipment, matériel to the combat elements, and (2) to the rear, evacuation, to relieve the combat elements of all that which can burden or decrease their efficiency.

The closing years of the World War found stabilized situations. It is expected and hoped that the next war will be a war of movement, for only in such a war can decision be obtained. In a war of movement those in the service of supply will find themselves confronted with a difficult problem in maintaining supply to the modern army.

Stabilized warfare permitted the establishment of huge immobile supply bases close to the combat area. In a war of movement a mobile supply system will be necessary in order to guarantee the greatest flexibility to the combat forces. The more mobile the supply system, the greater freedom of action to the forward units. Disruption of supply, even minor disturbances in a fixed system of supply can work to a great disadvantage to the commanders and the troops.

Those charged with supply have two major objectives: (1) the procurement of the supplies; (2) forwarding these supplies to the troops.

The forwarding of supplies is dependent upon the means of transport available. It is of prime importance that those responsible for the supply employ the means available most economically, both for man and vehicle.

At the disposal of the service of supply are:

(1) Water routes
  (a) Ocean routes and ocean-going ships
  (b) Inland waterways
(2) Railroads
(3) Motor truck columns
(4) Horse-drawn vehicles
(5) Pack animal transport
(6) Airplanes.

Which of these means or combination of these means to be employed in a given situation depends not only on the possibility of employing one or all, but also upon:

(1) The amount of supplies to be transported
(2) The type of supplies
(3) The immediate need for the supplies
(4) The security necessary
(5) The possibility of camouflage
(6) The condition of the routes
(7) The distance to be traversed
(8) The supply of fuel (gasoline, oil, coal, etc.).

For Germany, in particular, supply by ocean routes and ocean vessels is important, not only in a continental war but also in an overseas conflict.

Inland waterways and transport over these will be especially valuable when these routes extend generally along the route of advance or satisfy the needs of the defense and when the supplies so shipped are not required with clock-like regularity. Transport by water is influenced greatly by weather (fog, rain, snow, ice, etc.); consequently exact schedules can not be maintained. A further disadvantage lies in the inability to guarantee full security to the water route. To be sure, the wharves can be given security against ground forces, and by special construction and active defense means a defense against aerial attack can be established. It is impossible to provide a defense of the entire route, which can be easily observed from the air.

It will be necessary to use the normal gauge railroad almost exclusively as the means of transportation between the zone of the interior and the advanced bases and railheads in the theater of operations. Narrow gauge roads will be limited to more or less local transport. It is the purpose of the transport to supply most easily and expeditiously the forward elements. With this as a consideration, a happy medium should be sought whereby flexibility is achieved. Provide amply for railheads and unloading areas but not to such an extent as to cause undue dispersal. The distance from the front line to the forward establishments served by rail will normally not exceed 75 miles and should never exceed 90 miles.

Many of the difficulties incident to the protection of water routes are present when security for the rail route is sought. It is no simple matter to protect bridges, other man made structures, railroad yards and stations. Even

though in the future we must reckon with greater disturbance to and disruption of the railroad lines, yet in comparison to the best constructed motor roads the maintenance of the railroads will require comparatively less labor and be less costly.

In general, transport by rail will be normal when the distances to be traversed are great. Special conditions may demand or recommend other means of transport over great distances. For hauls over shorter distances the motor column can operate more rapidly and flexibly. Such a column is not bound to the steel rails, and although it operates on a time schedule it is not so strictly bound to adherence as is the train. Other advantages resting with the motor column are the better camouflage possibilities; the greater freedom in choice of loading and unloading sites. In spite of all the advantages that motor column has, the railroad will remain the backbone of the supply system.

Motor columns today have increased importance. They are highly flexible and can be used for all sorts of transport. But it would be a mistake to place our trust wholly in the motor column and discard the horse-drawn columns or trains. One type of column is as important as the other. They must be mutually assisting. Both have their advantages and disadvantages; each must be employed according to its capabilities and suitability.

Motor transport serves to augment the railroad (parallel employment), to bridge gaps in the railroad lines, or (and this normally will be its principal use), to extend the line of communications forward of the railroad termini. The motor columns will often transport from the railroad terminals to a designated point or area where loads will be deposited or transferred to horse-drawn columns. Obviously, roads or routes must be traversable by motor columns.

The advantages and disadvantages of the motor column over the horse-drawn column may be enumerated as follows:

The motor column: Advantages.

(1) The marching speed of a motor column is at least five times that of the horse-drawn column. In other words, a motor column of the same cargo capacity as a horse-drawn column can transport five times the load in the same time (neglecting of course, loading and unloading times).

(2) A truck transports 3 tons, an escort wagon ¾ ton, pay load. A 10 truck motor column transports what it requires a column of 40 escort wagons to transport.

(3) The small "motor transport column" (10 trucks in the German army) occupies about 550 yards of road space; the horse-drawn column of equal capacity (40 escort wagons) occupies about 1,100 yards. Some disadvantage arises to the larger column when orders are to be issued or transmitted.

(4) The lesser road space and the greater speed of the motor column relieves the road of traffic more quickly—a factor of considerable importance.

(5) Comparing pay load capacities, the cost of procurement and maintenance is less for the motor column.

(6) Fewer operating personnel required for motor columns. The ratio is 1 to 4 (10 trucks—40 escort wagons).

(7) Gas and oil for the motor column requires less "pay load" space than do forage and grain.

(8) The parking place for the motor vehicles can be smaller and therefore more easily protected.

(9) Trucks are fed only when used; animals must be fed daily.

(10) Loading and unloading of the motor column proceeds more rapidly.

Advantages of the horse-drawn columns:

(1) Cross-country mobility and ability to move over roads which motor vehicles can not travel.

(2) The greater number of vehicles permits easier distribution of loads.

(3) The possibility of procuring forage and grain locally and placing it in designated areas may save "pay load" space.

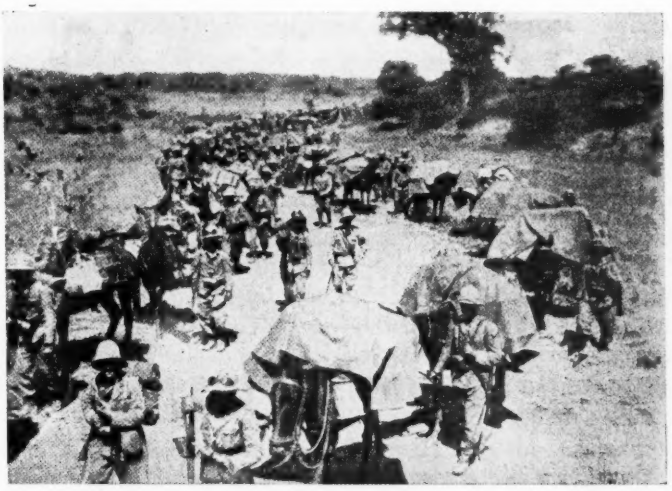
(4) The horse-drawn column produces a lesser cloud of dust and consequently reduces pick-up by hostile observation.

(5) The disabling of one animal does not delay long the further movement of the vehicle. A dead or disabled motor is a stopped motor vehicle.

(6) Breakdown of the escort wagon still leaves the possibility of using the animals as pack animals.

(7) No great expenditure of men and material for the construction and maintenance of routes as is necessary with motor columns are used.

(8) Horse-drawn columns are much less noisy and can travel closer to the front.



ITALIAN PACK TRAIN DURING ITALIAN CAMPAIGN IN ABYSSINIA

Pack animals find employment in mountains, in terrain such as is found in Abyssinia, and in jungle areas. Troops in Abyssinia operating in desert areas were frequently provided water in casks and water barrels transported by pack animals. A pack animal column of 100 animals can transport 7½ tons pay load at the rate of about 15 miles per day.

Airplanes for the first time were successfully used to supply large units (up to a division) in Abyssinia. The roads and trails were often so bad that only by plane could ammunition, food and water be supplied to the advancing troops. Whether the airplane can be used successfully as a regular supply means of transport in a European theater has not yet been tested. But assuredly no great obstacle will lie in the way of its use as transport means to supply food. To form supply planes into units, supported by pur-

suit and attack planes, should be no insurmountable obstacle. Let us asume such a unit of 30-ton capacity. Two trips daily (60 tons) would provide in a short time a modern division with its daily ration.

Evacuation, except for sick and wounded, man and animal, can be accomplished by the means enumerated above. Special provision must be made for the sick and wounded.

Every means available today for supply and evacuation has its advantages and its disadvantages. The important task confronting the service of supply is to employ most expeditiously and most economically a combination of these available means.

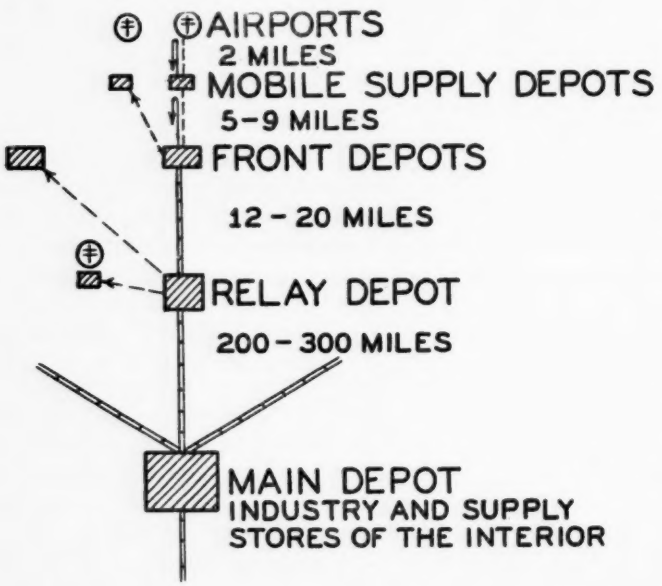
THE SERVICE OF SUPPLY OF AIR FORCES

["Das Nachschubwesen der Luftwaffe." By Colonel Nagel, Retired. Condensed from *Militär-Wochenblatt*, 29 April 1938. Translation by Historical Section, Army War College, Washington, D.C.]

By Major E. M. Benitez, *Coast Artillery Corps*

The systematic and continuous supply of combat materials and technical equipment is one of the essential requirements for the successful operation of air forces. The numerical strength and complicated equipment used, as well as the tactics and method of employment of these forces, require the organization of a separate service of supply independent from that of the army.

The increase in cruising radius, load carrying capacity and horsepower of modern airplanes have led to a tremendous increase in the demand of combat supplies, such as fuel, oil, ammunition, bombs and electrical equipment. According to a Russian author, a modern light airplane requires a combat supply of approximately one ton for one combat mission, while a heavy airplane requires from six to eight tons. The demand for supply of technical equipment, which includes everything required of the maintenance and repair of airplanes, replacement of motors, special equipment, arms and instruments, has also greatly increased.



ORGANIZATION OF THE SERVICE OF SUPPLY AS CONCEIVED BY COLONEL AFANASIEV (USSR)

Large quantities of supplies stored at airports are not only needlessly exposed to air attacks, but they interfere with the mobility of aviation units during changes of airports or during the transfer of units.

Colonel Afanasiev (Soviet Russia) believes that supplies should be stored in depth with a series of supply depots whose forward branches furnish the air forces with the necessary supplies. Depots in rear establish the forward depots and keep them supplied, thus establishing a supply system from rear to front. The same route, in reverse order, should be followed for shipment of surplus, damaged or captured materials and of anything that is to be removed from the zone of operations.

Colonel Afanasiev's conception of a supply organization, as mentioned above, is as follows:

(1) Mobile supply depots with combat supplies loaded on trucks are established about two miles in rear of the airports.

(2) From five to nine miles from the mobile depots, there are the front depots (parks) containing supplies, part of which are held ready for transportation. In addition, these parks are provided with spare parts for certain types of airplanes and with corresponding tools and shops. They supply a certain number of mobile depots, while they themselves are supplied from relay depots located from twelve to twenty miles in rear.

(3) The relay depots are, as a rule, located near a railroad station and have only regular supplies in larger quantities and greater variety. They receive their supply from the main depots, which are located from two hundred to three hundred miles in rear.

(4) The main depots receive their supplies from the zone of the interior. These depots contain supplies for all aviation units sufficient for several months of action.

According to Russian opinion, the various components of the service of supply form a separate organization; they are not organic parts of combat aviation units.

A change of airport requires a change of supply depots, unless the new airport already possesses its own airport depots. The combat supply system in general—with the exception of certain items, such as bombs of certain types and sizes—is the same for all aviation units. On the other hand, supplies required for maintenance and repair of planes involve great differences in types of equipment. The various types of airplanes, their motors and equipment, all require tools and parts that differ from each other, making it impossible for the advance depots to carry a complete stock of them. Consequently, when an aviation unit is transferred its combat supplies may be furnished by existing depots, while in many cases it will be necessary to establish advance depots for technical supplies. Aviation units should not, therefore, be transferred until the new supply line is completely organized and advance depots have been established. Otherwise the units may have to wait at their new airport until the service of supply has commenced to function. The same applies to the concentration of major air forces in a certain zone.

In order to avoid friction between the services of supply of ground and air forces, the movement of supplies should be regulated at higher headquarters (army, group of armies) by the common supreme commander.

The location of air bases, the means of communication connecting them with the supply lines and the disposition of the ground forces within the zone of operations require careful consideration. The quantity of combat and technical supplies and the necessary means of transportation are calculated according to the strength and type of the aviation units employed, the effort required of them in the execution of combat missions and that type of missions that are to be carried out within certain periods of time. The calculation of the probable losses must take into consideration the extent of the activity of the air forces, actual condition of the airplane matériel on hand, the location of the airports in the zone of operations and their vulnerability, the weather conditions and the question of which side possesses superiority in the air. From actual experience, the loss of one airplane in 50 hours of flying may be taken as the average. Judging by the experience of the World War, 50% of the losses occur over hostile territory, while 25% are due to falls and emergency landings on friendly soil.

Supplies are moved up or transported by water routes, highways, railroads, motor transport and air transport. While the greatest loads can be moved by rail and water, motor transport and highways permit the best and most suitable distribution of the loads, while transport aviation offers the quickest means, particularly where few roads are available.

In the Ethiopian Campaign, supplies for the Italian air forces were carried to the port of Massaua by water transport. From that port, a stationary supply system extended to the main aviation bases. All other airports and landing fields were provided with mobile supply trains and repair shops. Trucks were used to transport men and freight, while trailers served as blacksmith shops, carpenter shops, radio cars, photographic laboratories, electric light cars and similar uses. These trailers were so equipped as to be able to go into operation under the most difficult conditions and with the least delay. This supply organization proved to be highly satisfactory.

AMMUNITION AND SUPPLY TRAINS IN WAR OF MOVEMENT

[Condensed from article by Lieutenant Guido Smopoli, in *Rivista di Fanteria*, July-August 1937.]

By Major E. M. Benitez, *Coast Artillery Corps*

The organization and methods of operation of ammunition and supply trains in the Italian Army have remained antiquated, clumsy and ill adapted to the new ideas of employment, in spite of the experiences of the World War and of post-war studies.

The World War was essentially a war of positions; nevertheless, it presents many illustrations of the war of movement showing the difficulties of supplying the immense quantities of ammunition consumed by troops. The total number of projectiles expended on the Italian front were 25,282,000 small caliber, 11,469,910 medium caliber and 326,487 heavy caliber. According to Major Gianini, in the battle of the Isonzo the Italian artillery fired 1,202,000 rounds against 1,600,000 rounds of the Austrians.

The Abyssinian Campaign was conducted in a difficult country, where atmospheric and topographical conditions presented almost insurmountable obstacles. The Ordnance Service established depots for ten artillery and fifteen infantry fire units, totalling 4,000,000 rounds of artillery ammunition, 900,000,000 rounds of infantry ammunition, and 3,000,000 hand grenades. This was a fast, aggressive campaign and furnishes logical conclusions that have application to the mobile, dynamic campaign which forms the doctrine of the Italian Army.

Considerable study has been given in military publications to the ammunition supply, but its essential characteristics are not well understood. By comparison with the supply of rations, it seems a relatively simple problem. It is hardly appreciated that the supply trains of the division artillery constitute an awkward element, heavy, visible and exposed to hostile air attacks.

The war of movement requires light maneuvering elements, free from all unnecessary complications—real fighting units, always looking forward toward the enemy and not backward by reason of an unnecessarily heavy and complicated supply system. Similarly, mountain warfare calls for light, flexible units; but it also demands that these units have a certain degree of freedom, in order to be able to maintain large bodies of men and animals beyond the reach of wheeled vehicles.

The composition of the supply trains of the division artillery varies for each type of gun. Essentially, they consist of a headquarters, ammunition and supply sections for each battery; these sections represent a mass of men and animals greater than that of the batteries themselves. This presents a great problem at the moment of mobilization. It is simple enough to *assume* these trains as it is done at maneuvers, where the battalion commander cannot form an idea of what he actually will have in battle. The long string of wagons and carts, animals and men on the road; their movement, concealment and dispositions, absorb a great number of men, place a definite load upon the batteries, and restrict the maneuvering capacity of the divisional group; in short, it presents a complicated problem for the group commander.

Motorization solves best the logistic problem, speeding up supply, furnishing that decisive and dynamic action so necessary in the early stages of the war to penetrate and break up the enemy's organization. In France, caterpillar supply units have been proposed, consisting of a tractor and trailer, to bring ammunition to the infantry in action. In Russia, the whole organization of the individual services is being changed; it is expected that in place of 900 vehicles with 1,800 horses, 110 three-ton trucks and 80 ambulances will be sufficient.

In a war of movement, the wagon and the battalion carts are obsolete; they make the trains very heavy and should be replaced. The Fiat cross-country truck, the light truck Model 32, and the Guzzi motortricycle are particularly suited to replace the wagons, the battalion carts and a large number of the pack mules. The batteries—whether pack or draft—should retain their own combat trains of pack mules, which can move by trails concealed from air observation and

sheltered from fire, and thus travel to places which cannot be reached by motor vehicles.

Should the fire unit (assumed to be an average day's expenditure in periods of active operations) be kept immediately in rear of the battalion?

The unit of fire may be divided in the most convenient manner, depending upon the capacity of the means of transportation. The batteries may hold the allowance which they now have—about a third of the unit of fire—and keep the remainder at the ammunition distributing points, as it is now done with rations. From these points, the fast vehicles of the trains can bring the ammunition to the batteries as required.

In a war of movement, the action of the trains must be swift, prompt, bold and decisive and everything must be done to accelerate movement. Anything that checks or slows up action must be avoided. The action of the division artillery must be speeded up by providing the trains with fast vehicles that can follow the routes taken by the battalions, carrying adequate supplies of munitions and rations for the operations. Such vehicles can assure timely replacement of expenditures, and permit the prompt and decisive action of the guns. To load down the batteries with heavy transportation, to require them to have in their posession four rations per man and a day of fire, is to impose upon them a load that may from the very beginning prevent them from accomplishing their task.

Trains should be motorized and distributed more deeply. There should also be in time of peace a training school in every regiment of division artillery. Motorization will permit more efficient use of men; instead of four men to each wagon, only one man will be needed for a cross-country truck, thus saving about a third of the strength of the train.

In the light of new tactics, old systems must be abandoned. Only through bold changes can the artillery secure that decisive and dynamic action required in a war of movement.

THE SUPPLY OF MOTORIZED AND MECHANIZED UNITS

["Versorgung motorisierter und mechanisierter Verbände." By Major General Dihle. Condensed from *Militär-Wochenblatt*, 2 October 1937.]

By Major E. M. Benitez, *Coast Artillery Corps*

The foreign press seems to be very much interested in the formations, organization and employment of motorized and mechanized units, but comparatively little attention is being paid to the technical problem of moving such units and even less is said as to how this mobility will be maintained.

The accomplishment of strategical and tactical missions by motorized and mechanized units is considered as of primary importance and the practicability of carrying out assigned missions is taken for granted due to the inherent speed and radius of action of these units. It is also assumed that they can be employed in combat just like any other unit. These conditions can only exist when the motorized or mechanized units remain mobile at all times, and yet, very little is said as to how this mobility will be maintained.

Military units are tied to a vital thread which if broken or entangled, will paralyze them. This vital thread is the line of communications, whence the troops draw their supplies and where all surpluses and encumbrances are shipped. In employing or shifting troops, care must be taken that contact between the troops and the lines of communication is always maintained, because failure to do so may lead to disaster. Napoleon's campaign of 1812 in Russia collapsed, not through lost battles, or the cold of the Russian winter or the burning down of Moscow, but through the failure of the service of supply to function properly.

The supply problem has never been an easy one to solve. Troops, in order to remain fit, must be adequately supplied with food and arms. In friendly territory, food and forage is obtained by purchase; in hostile territory, by confiscation. However, the amounts obtained in this manner may be rather limited and the greater part of all food supplies must be produced in the zone of the interior, carried to the theater of operations and there distributed to the troops.

In former days, the amount of supplies required could be calculated, because the length of the marches depended upon the capabilities of men and horses. Today, however, the length of marches depends upon the amount of fuel available. A tired driver is replaced by another, so that this factor does not restrict the capabilities of motor vehicles.

It may be safely assumed that, barring interference either from the air or from the ground, motorized or mechanized units can cover daily a distance of from four to six times that of foot troops. Since motorized and mechanized units usually travel in several columns on different roads, considerable interference may be encountered in mountains and similarly difficult terrain where detours are not feasible. Individual vehicles having motor troubles should be eliminated from the column in order that the movement of the unit will not be delayed by them.

The mobility of motorized and mechanized units can only be maintained when a proper supply of oil and gas is always available. Troops may live off the country, but fuel supplies and war materials must be brought up from the zone of the interior, unless ample supplies are carried at the outset of an operation. Without gas and oil, motorized and mechanized units cannot move and therefore, cannot fight. The fact that motor columns travel on different roads increases the difficulties of supply. Motorized and mechanized units make long marches and, consequently, the supply elements must cover long distances. Motor roads are not available everywhere and the service of supply will encounter difficulties whenever it becomes necessary to detour from the original route.

If possible, all vehicles included in a movement should carry enough fuel to travel the same distance. Provisions must be made to refuel the vehicles while on the march, in order that the motorized or mechanized unit be capable of engaging in combat upon reaching its objective. Fuel trucks accompanying the individual contingents issue fuel in cans and vehicles are thus refueled during the rest period. Special precautions must be taken to conceal these fuel trucks from air observation and to protect them from air attacks.

The possibility of refuelling combat vehicles while in action is being given considerable thought; many officers believe that it can be done.

The fuel supply problem of a motorized or mechanized force is not solved by merely supplying the amount of fuel

necessary to cover the required march distance. The requirements for future use must be anticipated, otherwise a unit may arrive at the line of departure without sufficient fuel to engage in combat or engage in combat and then stall during the action because of lack of fuel. In both cases the effects would be disastrous. Timely preparations and plans for the supply of motorized and mechanized units are absolutely necessary in order that these units may be capable of fully utilizing their mobility and striking power.

THE ROLE OF CAVALRY IN A FUTURE WAR

[Condensed from an article by Lieut. Colonel Klemens Rudnicki, appearing in the August 1938 issue of *Bellona*, Warsaw, Poland.]

By Major E. M. Benitez, *Coast Artillery Corps*

Arguments and Their Causes

There has been no war, in any epoch, after which there were not heated discussions as to what the role of cavalry would be in a future one. This question was always asked, always resulted in polemics, refutations, heated arguments, exaggerated plans and oftentimes to disorientations lasting for a long time.

Why did this happen? Why were there not likewise heated discussions concerning the role of infantry or artillery?

There were certainly valid reasons for this.

It seems to me that the causes go beyond matters embracing only professional interest in cavalry and cavalrymen. The reason is considerably deeper and is at the very basis of the problems connected with our military heritage, because cavalry has in itself all those qualities which the art of war commonly requires in the organization of maneuvers: mobility, ability to make rapid decisions and, in one word—surprise.

It always facilitates in an excellent manner the application of the basic principles of the art of war, without which it would be difficult to carry on war. Nothing has ever represented these possibilities better than it has. Hence, all discussions of cavalry matters quickly extend beyond the circle of purely cavalry interests into the field of general considerations of basic importance.

Often it was not a question of cavalry alone but also of form of battle or how the operations were to be carried out, and these are rather important matters.

Here is the general and the basic cause of the constantly recurring discussions, after each war, as to the role of cavalry in a future war. Around cavalry hinges the doctrinal problems which are not essential and most important as regards consequences.

Another cause of the eternal controversy concerning the role of cavalry lies in cavalry itself and results from the sensitivity of this arm to the appearance of new technique, because cavalry has always survived in a most honorable manner all the shake-ups caused by the novelties. This, of course, provokes heated controversy the content of which must concern the organization of cavalry activity in the face of new conditions which change perhaps in a radical manner the picture of the future field of battle. In other words cavalry must undertake an evaluation of the influence of these new conditions on its future usefulness and consider the adaptation of its preparation and doctrine of organization to planned use and hence to doctrine of operations.

And in the midst of this difficult work cavalry, of course, was often attacked from all sides. How many times have people, carried away by the deceptive behavior of technique, lost faith in the usefulness of cavalry? And how many times have actual events cruelly punished them for this by snatching from their reach the laurels of victory? Only the history of the cavalry idea can answer this question and this idea I shall develop below.

* * * * * * *

In history there has always been an insistent demand for a quick answer to the question: What is to be the role of cavalry in a future war?

The answer, for example, might be that cavalry had already lost its raison d'etre on the modern field of battle and that it was not capable of carrying out independent operational tasks and, consequently, that it had only a tactical role.

And then too the answer might be worded this way: Indeed, cavalry can play an independent part but only in an operational way, within the framework of the activity of the operations group or army, as a cavalry arm. And even in this case there might be a difference of emphasis on the work expected of it. It might be given the task of distant reconnaissance, protection and, hence, it might be required to play a part in the preparation for the battle of the army and on the other hand it might be required to keep itself intact, in reserve, for intervention in the battle itself—at the decisive moment or in the moment of greatest crisis—so that it could finally turn the wavering scales of victory in our favor. But each of the different cavalry operations would require a different preparation and another "motto" for cavalry regulations, even though the one existing for cavalry regulations of the whole world before 1914 was: "The chief task of cavalry is reconnaissance."

Finally, the answer might appear much more serious and say that the usefulness of cavalry resides in its strategic significance; that is, its mass might influence the decisions of the chief command and in due course influence not only the operations themselves but also the manner of conducting the war in general. (Something resembling the case of Budenny in the Polish theater in 1920.)

So then we can understand why that after each war there have been discussions dealing with these possibilities, and when we came to new conclusions as a result of new experience the discussions took on a more definite color; there came to be accepted views, finally a doctrinal basis and a point of view under which all cavalry problems were solved.

International conditions have now reached such a stage, from a military standpoint, that it is time for us to consider this matter.

Results of the Discussion Up to the Present Time

The international concensus of opinion concerning the role of cavalry has been formed from:

(1) teachings of the past;

(2) observation of methods of profiting from these teachings in the present and, hence, on observations of present efforts at preparation and organization; and

(3) forecasting the future.

In the past the investigator sought general directives, the main truths of history—the basis of life. In forecasting the future he tried, with his imagination, to sense the teachings which have not yet been written and which are jealously concealed among the unexpected things of technique. In observation of what we have at present he tried to see the doctrinal realization or incarnation which might be just as important as an explanation of what we know and anticipate through the separate armies of the world.

What truths do we get from history? What does the past teach us?

First of all it affirms that no progress in technique, no increase in the power of fire and no change in the modern battlefield has been able to take away from cavalry its true value nor decrease its usefulness.

Whoever at the present time allows himself to be deceived by new creations and loses faith in the value of cavalry as one of the chief arms and as a basis for his military or operational plans or ceases to count on it as a basic factor of calculation is in line for a cruel deception.

Those who have relegated cavalry from the role of main arm, acting independently, to an auxiliary role must receive a negative verdict from history, because if one page of history states that there has been a decrease in the value of cavalry and that it no longer plays a decisive part in battle, the next page warmly contradicts this by citing a great victory made possible only by cavalry.

As a result of the perfection of firearms Machiavelli wrote in the year 1518:

". . . It is no doubt profitable to have some cavalry to assist the infantry. But we should not treat it as a basic arm. Its importance is justified by the opportunities it offers for reconnaissance of the terrain in front, for patrolling the roads, for laying waste the enemy's country etc. But in battles which are to decide the fate of peoples it is best to use it to help other arms and not as a primary arm for winning the victory itself . . ."

The doctrine on which the cavalry of the West was based during the sixteenth and seventeenth centuries, after accepting this queer advice, was refuted by the Polish Hetmen with their magnificient victories which, lasting for over 200 years and exciting the admiration of the whole world, both Christian and Moslem, were due solely to the masterly way in which they used cavalry as their main arm.

Leopold Anhalt-Dessau who, as a result of experience in the Spanish War of Succession, predicted the decline of cavalry was answered in a decisive manner by Frederick the Great who used cavalry as the chief factor in his plans and victories.

The pessimistic voices heard after Frederick the Great, as a result of a steady improvement in firearms, were answered by Napoleon, the unrivalled master in the use of cavalry. His cavalry enabled him to meet many pressing operational needs that could not have been met with any other arm. Cavalry decided many operations in his favor. He once said concerning cavalry: "There is no end to what I could do with the help of good cavalry." And concerning a lack of cavalry he once said: "With enough good cavalry at Lutzen and Bauten I could have changed the map of Europe . . ."

When, however, the World War, fought with a whole arsenal of new inventions, caused voices to be heard predicting the complete decay of cavalry, we have an immediate denial in the form of theoretical and practical proofs.

Theory gives us numerous indications concerning the possibilities of using cavalry in mass so as to change completely the course and final results of the war. At the beginning of the war it was possible to use it in strategical pursuit; there were possibilities of massing large groups of cavalry on the right wing of the Germans in France in 1914 or the exploitation of "breakthroughs" on the front at the battle of Amiens in 1918 and there are many other similar cases too numerous to mention.

Practice, however, presents us a series of positive yet neglected examples from the World War as well as cases in Palestine, at Vilna in 1915 and lastly in Poland in 1920, when the cavalry of Budenny forced a long retreat of the whole Polish front and by almost preventing the realization of the plans of the Commander-in-Chief, influenced in a decisive manner the outcome of the whole war.

History therefore clearly teaches us that it is an error to become unduly enthusiastic because of new inventions and lose our faith in the value of cavalry.

The present day cavalry idea understands this well and takes into account these unquestionable lessons of the past. It has lived through the crises presented by the airplane, tank, gas and bacteria, crises which may be compared only to that which it passed through after the invention of powder; it has been victorious and has revealed this first teaching of history: There is NO GOOD reason why cavalry should be removed, in a thoughtless manner, from the future field of battle. If this is done the future will show the falsity of the step just as it has done so many times in the past.

Another teaching of history, discovered today, is that we must not apply cavalry experience too narrowly; that is, we must not apply the experience of the last war in a schematic manner to the next war.

It would seem at first glance that this is too evident to discuss but just the same it has often been disregarded.

For example, on the basis of the Austro-Prussian War in 1866, it was affirmed that the views prevailing at that time were false because the cavalry of Moltke, in reserve—according to the views held—in the rear with an assignment for battle, did not go into battle at all (though it had been created precisely for this purpose) and, hence, did not contribute anything to the war, whereas it could have rendered excellent service if it had been used for distant reconnaissance.

The experience of this war, confirmed also by the campaign of 1870-71, was to the effect that the role of cavalry must be above all reconnaissance and that it should not take part in the decision of the battle. In the meantime these views, carried over literally to the front in 1914, broke down completely and led to the relegation of nearly all the cavalry of the world to secondary struggles and to the confirmation of its defects in decisive moments.

This truth stood out clearly forming the present day cavalry doctrine.

In the face of historical proofs extending very far back the initial hesitation as to the precise use to which cavalry should be put, whether it should be used in the battle itself

or used in preparation for the battle, no longer prevailed. The following was confirmed: Cavalry can be of real use when we do not treat it schematically but use it in the way that best conforms to the concrete plans of operations. Every plan will be different and have a crucial point upon which its success will depend and cavalry can be used to advantage only when it is used for satisfying the most pressing needs of the moment.

The third lesson of history, and one just as clear as the preceding ones accepted by modern cavalry doctrine, is that the real usefulness of cavalry, based on the above-mentioned teachings, will be determined by its doctrine of organization.

Cavalry that does not keep in step with the times and does not adapt itself to new conditions will be found wanting in case of war, because it will not be capable of performing the tasks assigned to it.

Cavalry must be able to profit from new inventions and instead of opposing them it must accept them and become modern cavalry.

The cavalry of 1914 was not properly adapted to the needs of the times and this was the chief reason for its failure.

A clear understanding of this truth is already evident from the work of organization going on in the cavalry of all the world, from the extremely modern forms of some cavalry forces to the extremely simple forms of others.

We have now given the three fundamentals of the cavalry idea, and in accordance with these principles the role of modern cavalry in future operations must be determined and not in accordance with schematic regulations such as: before the battle, reconnaissance; in battle, fight on the wing and after the battle, pursuit; on the contrary the role will constantly change just as the operations change; the role will be the one best adapted to the concrete case. (This was the plan of Napoleon.)

On the basis of these fundamental principles people with imagination are trying in a logical manner to foresee what the future has in store so that they can direct cavalry work in the proper manner.

What are the prevailing opinions in this respect?

Lessons learned by peering into the future.

What does the future hold in store from a military standpoint?

Here I am in complete agreement with the deductions of Lt. Col. Mossor, which reflect faithfully the views already held in Europe in this respect. I feel, just as he does, that the future war will be predominantly a war of maneuver and that on a scale not known up to now.

It would be an error to suppose that the future war, like the World War, will be a war of position with no maneuvers, because the war will be carried on under entirely different conditions.

During the World War the equilibrium between the tactical means of attack and defense was upset. The means of defense: machine guns, barbed wire and concrete became predominant and "nipped maneuver in the bud." Vain efforts were made at the time by the means of attack to revive it but neither heavy artillery fire lasting for days nor tanks were capable of doing so.

But today it is otherwise. Everything indicates that equilibrium is again established. Indeed, we may even say that the means of attack are, to a great extent, in the ascendancy. They are really powerful. All the new technique aims at promoting maneuver; the construction of military airplanes and hundreds of excellent tanks and the use of gas and bacteria aim to favor maneuver.

When all of a sudden war breaks out there will be a violent shock that will not, in my opinion, be favorable for a stabilization of fronts. Maneuver will prevail and that in an extraordinary manner. In the meantime there may be a violent disorganization of the means of combat and the improvised movements resulting from this may open up a broad field for the action of a rapid ground arm. The latter may now decide the victory and will be the chief arm of the future.

This arm will be cavalry, an arm whose value has been proven by history.

The future role of cavalry is this: It will be used in battle as a main arm, winning a decision by lightning-like movements, making full use of surprise.

It seems that the most urgent need of modern operations will be the necessity of exploiting the countless situations and the opportunities for scattering the enemy through a maximum exploitation of the surprise factor. Modern cavalry must exploit these opportunities and in this way be true to its past history. Its main work will be in both the field of strategy and in that of operations.

On the whole it appears that modern operations will be based on the possibilities of highly mobile arms. These will be the basis of the planning, and operations must conform to them. In making plans the question "What is our problem?" must be answered as follows: We must make our plan so as to favor to the maximum extent the highly mobile arms.

So then in the future these arms will dictate the operations and determine their course.

It remains to be seen whether modern cavalry will be able to perform the tasks that the future has in store for it. Is it not too much of an anachronism and will it not fail to meet our expectations?

The past has already answered these questions and says that it will not disappoint us:

(1) if it is prepared in an intelligent manner for its proper role and given an organizational form suitable for its work and the conditions of the times,

(2) if the ones using it have full faith in it and assign it the proper tasks,

(3) if it has cavalry commanders prepared for operational tasks.

The task of the future is to confirm these truths which have already been observed many times.

However, even the present gives a clear answer in the various forms of organization which the cavalry of the world has lately taken on.

Without rejecting the idea that we need the maximum number of highly mobile arms, a number of governments have lost faith in the value of mounted cavalry in favor of motorized cavalry.

The discussion which preceded the decision of these governments brought to light all the pros and cons of both horse cavalry and motorized cavalry composed of automotive and armored units.

Today we can see clearly the results of this discussion, because we find its definite expression in the organizational forms found in the separate European armies. Cavalry views have already left the theoretical stage and have taken on a concrete form of organization.

What do we find in the various armies of Europe?

The West, with France in the lead, has radically reduced its operational horse cavalry and replaced it with independent motorized armor formations.

Germany also adopted this plan, leaving only a small cavalry force in East Prussia.

But the East and Northeast, with Russia in the lead, kept its former horse cavalry, developing its operational formations on a large scale.

The East adopted this plan because the terrain and other local conditions did not justify a limitation of horse cavalry in favor of independent armored units; the weakness of the latter is too evident and it would not be safe to put too much trust in them.

Could we stake the outcome of battle, the success of which will depend on maneuver, on such an untried factor as armored means?

If we know that success will depend on the rapidity of maneuver, could we allow ourselves to be deceived by this new creation? Could we abolish cavalry and then stand hopelessly confused when the mobility of the armored units proved fiction?

Think how much this arm is dependent on the terrain. Think how forests, rivers, swamps and snow can impede these units. And then too what if the enemy exercises his technical ingenuity in the construction of artificial barriers?

Besides, think how long and how lacking in mobility the motorized armor division will be, if it has a length of 93 miles.

If, however, it wished to shorten its march column and break up into several groups, then think of the roads necessary and how difficult it would be to find these roads in the East. And finally think of the danger to which the column would be exposed from the air and at night.

Could we then go so far as to base on armored units our decisive battle maneuvers?

I am of the opinion that the judgment of the so-called "East" is correct and cannot be proved false. Our conditions are such that we must have a weapon of great mobility in the form of good horse cavalry.

Of course, the best solution would be to have a mass of both horse cavalry and of motorized cavalry, as Russia has. This, however, is a vain dream the realization of which is not possible for all. Not every nation can stand such expense and the risk connected with it. As a rule one must rely above all on horse cavalry.

But in order to increase its value and make it capable of performing its task it was reorganized. In the East its fire power and penetrating power—and thereby its rapidity of action—has been strengthened by accompanying armored weapons. In order, however, to cover its action it was provided with strong antiarmor and antiaircraft weapons. In a word, it became modern cavalry, adapting its doctrine of organization to operations and to the times.

In this way the motor and armor instead of driving cavalry from the field of battle, as occurred in the West, it has become its ally and efficient assistant.

Whereas in the West only the cavalry idea remained, in the East there remained both the idea and the form, though the latter has been modified. In doctrine the East and the West followed a different path. As to which is the best only a war can decide. It is certain, though, that the one best adapted to local conditions will prove good.

If, however, we consult history in this matter, we shall find in the past a certain similarity between the present day cavalry idea and that of former times.

What we have now—with all the technical novelties—reminds us very much of the fifteenth century; that is, the period when an improved firearm appeared on the field of battle.

Today, as well as then, cavalry—having received a powerful doctrinal shock—has been forced to revise its views. And formerly—just as is the case now—the East and the West followed a different path. At that time the West lost faith in cavalry and, having replaced its cavalry with mounted infantry, ceased to decide battles with cavalry and no longer made plans based on its qualities. The East, though, remained faithful to cavalry and history tells us which was right in its decision.

Every test of the two doctrines on the field of battle shows which was the better decision. Kircholm, Trzciana, Kluszym, or Byczyna, as well as the victories of the Polish Hetmen lasting for 200 years, the secret of which was precisely their faith in cavalry, give us the answer.

I now close my discussion concerning the role of cavalry in a future war.

I do not draw any sensational conclusions nor reveal anything new, for the simple reason that there is nothing new to reveal. All these things are as old as the world; all were written long ago in very large letters but time has dimmed them. Perhaps the very emphasis given them has kept people from seeing them.

That cavalry proved its value in the days of great leaders does not seem to be a mere matter of chance, because these leaders always saw its value and profited greatly from its use. Who knows but that they were great precisely for this reason?

FORCING A CROSSING OF A WATER OBSTACLE

["Passage de vive force d'un obstacle eau." By General Loizeau. Condensed from *Revue d'Infanterie*, April 1938.]

By Major R. G. Tindall, *Infantry*

One of the foremost French tacticians makes a thorough study of the details of an attack across a stream line under conditions generally similar to those under which the Germans attempted to force the crossing of the Marne in July 1918. The situation he considers is that in which large enemy forces are present and the stream is used as an obstacle by the defender, a case which will occur more and more frequently in the future, because of the development of mechanization and motorization.

He indicates that a corps, part of an army, can contemplate crossing on a front of about 5½ miles, provided it has

a triple reinforcement in artillery. An army if it wishes to gain a bridgehead 5 to 6 miles deep, must attack on a front of 12 to 15 miles.

He divides the operation into two phases. The purpose of the first phase is to gain a bridgehead 2 to 3 miles deep on the opposite bank, sufficient to shelter emplacements of the ponton bridges from ground observation and short range fire of hostile light field artillery. In turn this first phase is divided into two periods.

In the first in each of the three divisions of a corps, leading elements cross by night and gain a line of departure from 600 to 900 yards from the bank, preferably a clearly defined feature such as a road. This first crossing may be by surprise or under protection of artillery fire. It will be by discontinuous means. General Loizeau indicates that these "leading elements" should be as strong as possible in infantry and must include what is necessary for the capture of the bridgehead 2 to 3 miles from the bank. A small fraction of light artillery and a few tanks also would be advantageous, he states.

This crossing may be done by waves. In the first wave each division might cross three battalions (one from each of three crossing points) by small boats, Habert sacks (sacks filled with straw) and footbridges. In the second wave there would be three more battalions crossing either by footbridge or on ponton boats, and if possible, a company of tanks crossing on rafts. Later, there would follow a few fractions of light artillery.

As soon as the battalions of the first wave had crossed the obstacle, the movement to the line of departure would be started.

The success of the whole operation depends upon that of this first period, he points out. The infantry must quickly break up the enemy on the river bank. The engineers must insure the crossing of the infantry by light means of crossing. The artillery intervenes initially only if surprise cannot be achieved.

During the second period of the first phase the attack is launched toward the bridgehead 2 to 3 miles distant.

In the second phase bridges are constructed. This cannot be done until the bridgehead is sheltered from long range fire of machine guns and the close observation of the enemy. The command, if possible, causes the construction to start early in the afternoon and at the latest three hours before dark in order to permit the necessary reconnaissances for emplacement of artillery to be displaced.

During the building of the bridge the movements by discontinuous means continues and the attack is pursued in order to enlarge the bridgehead. On the following day, after considerable artillery has crossed the river, the attack is launched to gain a bridgehead 6 miles deep.

General Loizeau points out that the initial crossing of light elements may be done silently and secretly by the use of the infantry kapok footbridge which can be assembled in the last cover, at least in part, and launched silently in two or three minutes. He rejects the use of ponton boats for the crossing of the leading elements and favors the use of small boats, procured locally or hastily constructed by engineers according to a regulation pattern.

Crossing by discontinuous means is slow and vulnerable and by night makes the regrouping of units on the far bank quite difficult. Hence he points out the necessity for careful measures to avoid errors in direction and dispersion due to the current.

Once a first bridgehead has been created (of some 300 yards including the covers or slopes immediately dominating the stream), heavier material such as ponton boats or rafts made from this equipment, may be used.

He says that in addition to all the ponton material judged necessary, there must be an additional reserve of 33 per cent, since this material is quite vulnerable. Furthermore, after bridges have been established they should be doubled by operation of rafts permitting a current of evacuation without interfering with traffic on the bridge. These rafts also are an emergency means if the bridge is interrupted.

Moreover, bridges on solid supports should replace the ponton bridge as soon as possible. Employment of material found locally for this purpose and for boats, etc., is only possible if this has been assembled in rear, not close to the river, but where it can be handled by engineers with proper tools. The employment of rafts and bridges of barrels, of floating footbridges of oak planks and of boats procured locally or constructed is desirable at various stages.

General Loizeau cites several examples during the World War to show that even when the enemy is holding strongly behind a stream line, it is possible for small elements to gain the opposite bank by surprise and open the way for larger forces. He insists on endeavoring to obtain surprise for the crossing of the first elements.

The infantry, in gaining its line of departure, must secure with the first companies sent across a preliminary bridgehead some 300 yards inland. Only when the rest of each leading battalion has crossed and formed up will the battalions seek to advance to the line of departure.

Each of the three front-line battalions in each division will embark from one point. One company of engineers is needed at each crossing point. After the first battalion has crossed a second arrives at the crossing point and also at times a platoon of tanks.

The hour of starting the crossing depends on the value of the obstacle and the amount of infantry which it is necessary to cross. He gives three examples of a time schedule, assuming a stream of some 50 yards width.

In the first case he assumes that it is necessary to use artillery to protect the movement of the infantry across the stream and that tanks will not be used in the initial stages. In this case he suggests (daylight being at 5:30 AM):

Artillery preparation: 2:00 AM to 5:30 AM
Infantry starts crossing: 4:00 AM
Line of departure occupied: 5:30 AM
Attack to gain bridgehead 3 miles distant, 6:00 AM.

In case it is desirable to use tanks in the early stages and also to protect the crossing by artillery fire, he brings out that the tanks must arrive on the line of departure an hour before the attack is launched, that therefore they must finish crossing the river 2 hours before that time, begin crossing 4½ hours before that time, that the construction of rafts must be started 6 hours before the attack

from the line of departure and that the first infantry must start crossing the river 7½ hours before that time. In other words, to attack from the line of departure with tanks at 6:00 AM, the infantry in this case must start its crossing at 10:30 PM.

In case it appears possible to cross over the first infantry elements by surprise and without artillery fire, he suggests the following schedule as a possibility:

Boats and footbridge material brought up: 11:00 PM
Construction of footbridges: 3:00 to 4:00 AM
Crossing of infantry: 4:00 AM
Capture of line of departure: 5:00 AM
Artillery opens preparation: 5:00 AM
Start of attack: 6:00 AM.

He suggests that since the division engineers will be called upon soon to operate on the far bank to reestablish communications that the bridges often should be built by corps engineers, perhaps reinforced by army engineers.

A large amount of artillery is necessary which General Loizeau estimates as the triple of organic amounts. He stresses the importance of counterbattery. This must be particularly effective upon arrival upon the bridgehead 2 to 3 miles from the bank (for here the division artillery will be out of range and the troops exposed to a counterattack) and during the night J to J plus 1.

He suggests that soon after daybreak on J day, it will be desirable to make extensive employment of smoke screens and to mask large surfaces in order to prevent hostile artillery from adjusting with air observation.

The principal artillery displacement will be during the night from J to J plus 1 when the bulk of the 75-mm artillery and part of the 105-mm guns will cross the stream over the ponton bridges. Heavier material will wait or move into the valley on the near side.

During the night J to J plus 1 little except artillery and artillery ammunition cross the bridges. General Loizeau gives an example of what will use these bridges on this night. Assuming that in one hour two battalions of 75-mm guns or 100 tons of horse-drawn munitions or 300 tons of auto-transported munitions can cross a ponton bridge, he gets the following for the three bridges in the corps zone: 18 battalions of 75-mm guns, 2 battalions of 105-mm guns and 2 days of fire on the division artillery ammunition trains will go forward. Empty caissons of units, sufficient to transport 1 day of fire will return to the rear, load up and recross the river and empty division artillery ammunition trains will return to the friendly bank. All of this will require an average of 7 hours for each bridge, so that apparently evacuation and rations would have to move via raft.

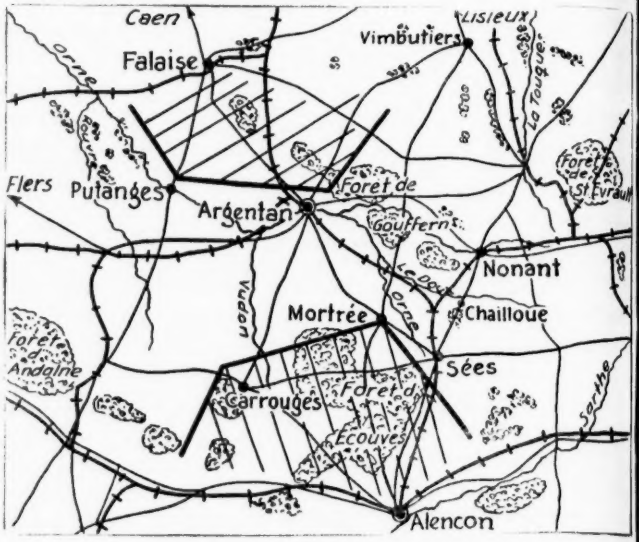
A particularly effective antiaircraft defense of the crossings and at least temporary air superiority is essential.

A MOTORIZED RECONNAISSANCE GROUP IN THE GRAND MANEUVERS OF THE WEST IN 1937

["Un groupe de reconnaissance motorisé aux grandes manoeuvres de l'Ouest en 1937." By Major de Langle de Cary. Condensed from *Revue de Cavalerie*, May-June 1938.]

MAJOR L. K. TRUSCOTT, JR., *Cavalry*

The maneuvers of 1937 had special interest for cavalrymen in spite of the absence of large cavalry units, because three division reconnaissance groups, one entirely motorized, took part. The high command intended to see this reconnaissance group at work with regulation means in order to judge its capabilities.



This reconnaissance group was organized with a normal staff and two groups of squadrons from different units, each squadron keeping garrison material and personnel. Each group consisted of a mixed squadron and a squadron of motorcyclists of three platoons of fusiliers, one platoon of machine guns, and two antitank cannon.

The general situation assumed that following an important battle in the region: Bernay—Evreux—Mantes which resulted favorably for Red (north). Red forces disembarked near Caen with the mission of outflanking the Blues (south) who had been forced back on the lower Seine and of advancing in the direction of Alencon. A new Blue army was constituted between the Mans and Alecon to parry the threat and drive Reds back on the sea. It being assumed that Red has already disembarked and advanced southward as far as Falaise, Red once past the plain of Argentan was faced with important masses of the forests of Ecouves, Monaye, and Andaine. The problem presented was that of knowing whether to turn the obstacle from the east or west in order to continue the offensive to the south.

The Red force was composed of a corps of two divisions reinforced by two battalions of light tanks, one regiment of long range heavy artillery, and one group DCA. One of the motorized divisions from the beginning found itself on the left of the dispositions, while its reconnaissance group, initially in advance, was displaced and thus formed the extreme part on the east of the battle front.

The Blue force was composed of a corps reinforced by some light tanks, batteries of motorized 75's and a group of DCA.

MANEUVERS OF 14 AND 15 SEPTEMBER

The evening of the 13th, the reconnaissance group reinforced by a battalion of infantry and a group of 75's covering its division (Red) was stopped on the Orne on both sides of Argentan on a front of about 9 miles. It was in contact with enemy occupying defensively the opposite bank, with bulk extending from Mortree to Carrouges.

1st Phase:—The reconnaissance group held the banks of the Orne and the Ure and scouted toward the east and southeast with two reconnoitering detachments. These platoons rapidly furnished precise information on a parent contour of centers of resistance, emplacements of automatic arms, nature of terrain, possible passages, demolitions, and utilizable materials for mending roads and repairing bridges.

2d Phase.—At 10:00 AM on the 14th, infantry crossed the stream all along the front. The reconnaissance group was directed to the south to extend the left of the infantry. Its platoons resisted repeated attacks by Blue forces. Its reconnoitering elements determined the extreme right of the Blue forces and identified units of cavalry and infantry which were before it. Red forces were able to reach Mortree —Chaillou.

Maneuvers of 16 and 17 September

The evening of the 15th, the Red corps decided to attack next day exploiting in the direction of Sees, by turning the forest of Ecouves from the east. A mechanized detachment composed of the reconnaissance group with a battalion of light tanks, a group of truck-drawn 75's, and a battalion of infantry in trucks, had the mission of covering the attack on the east and enveloping the hostile right flank by: Nonant-le-Pin—Sees.

In spite of hostile resistance, rough and covered terrain soaked with rain, the reconnaissance group procured without delay information of the enemy, crossed the Don, and was able to pursue its progress toward the south. However, on the 17th, Reds were counterattacked on their right flank and forced to withdraw.

In these four days of maneuvers, missions given the reconnaissance group were numerous and diverse:

Reconnaissance by reconnoitering detachments (in addition to the close-in missions);
Taking contact on a determined point;
Offensive action to facilitate entry of infantry into action;
Protecting flank of infantry and continuing offensive mission;
Advance guard for motorized detachment of all arms;
Defensive action and maintenance of liaison with division.

The maneuvers could not include the preliminary march of the reconnaissance group covering its infantry division from its point of departure distant from the zone occupied by the enemy and the making of first contact. This mission, which might have been a prologue to the battle, is one of the most delicate for such cavalry units. While not practicable in this maneuver, it would have been interesting to take the mission from its point of departure; that is, the landing of the division in foreseen zone, then advance 40 or 50 miles by a march during which the enemy would be encountered in positions that could not be foreseen at the start. It will not be easy for commanders of reconnaissance groups to envisage tactical and technical difficulties of such operations. Studies should be undertaken to habituate solving the problems that will be as increasingly difficult as the adversary is active.

Since contact was made the first day with the bulk of enemy forces, the distance of the first reconnoitering detachment was not more than 19 miles from its point of departure. Short distance permitted receiving without difficulty all the numerous radio messages. For the same reason, supply and maintenance was not difficult, though numerous "sounding blows" sent in all directions imposed ceaseless operation on motors, with increased consumption. Addition of a 300-liter tank truck was an advantage on the 15th. Gas and oil supply will be one of the most important problems in distant reconnaissance missions. Tank trucks of perhaps 500 liters are lighter, less visible, less vulnerable than heavy trucks, and should be included in the squadrons.

Trucks that transport machine guns and personnel are cumbersome and cannot approach close to the firing lines. Three-place carriers were tried, but are defective. One unit employed motorcycles and side cars, and the numerous missions performed during the four days showed the enormous advantages in mobility, rapidity of entering, and retiring from action. The platoon consisted of 13 side cars, 3 for the command group and 5 for each group of pieces of which 2 were machine-gun carriers.

Antitank cannon should be provided with mounts that permit instant firing during march, and heavy, cumbersome trucks should be eliminated.

Platoons of motorcyclists were used to the maximum and their service showed what can be expected of these marvelous troops. Extreme mobility, rapidity of transport, ability to approach close to firing points, makes them precious units for rapid exploitation, closing unforeseen breaches, transporting fire from one sector to another. The journal of the reconnaissance group during the four days would provide many illustrations.

Of matériel, the White AMD are of ancient model and long service entitled to the care and deference given old servitors. Motorized units, like the horse units, need new blood. The AMC Schneider, baptized AMR by circumstances, are of types too well known to necessitate comment. In spite of long service rendered, to which we were not accustomed in other vehicles of the kind, they are too delicate in maintenance and organism for war engines. Certain motorcycles constitute perfect matériel, robust, supple, nervous (too much sometimes for drivers badly instructed). Mechanical inconveniences include difficulty of starting after a night in the open in humid weather; magneto trouble during rainy weather.

Supply in general functioned without trouble during the maneuvers, but it is true that the reconnaissance groups remained in the same region during the four days returning each day to camps close enough to the terrain of action for trucks to join easily. Experience indicates that method and celerity of maintenance requires that displacements of repair units be reduced to the minimum.

Relative to organization of the reconnaissance group, the AMR and AMD actually pertain to different squadrons, probably to facilitate supply and maintenance by giving each squadron a single type of vehicle. This idea, good in theory, was not so good tactically. In fulfilling the role of covering the infantry division on a front of at least 10 miles, the commander must subdivide the zone assigning one to each of two squadron commanders. In each there will be

reconnaissance for the AMD while close security should be confined to the AMR. Consequently, squadrons will be divided so that each chief will have both types available. It is less difficult for a captain to foresee and provide supply and maintenance for vehicles of two models if this organization is foreseen and method regulated. Further, mechanized vehicles are valued according to the utilization and maintenance of matériel. Placing both types in the same organization recognizes this fundamental principle. There is every advantage in letting a commander employ personnel and matériel of which he knows the true value. It would be advantageous to organize mixed squadrons of AMD and AMR.

In resume, the reconnaissance group without having been in reserve an instant was utilized to the maximum in diverse ways during this battle of four days; and has shown what can be expected of such cavalry units, carrying in motors the faith and audacity heretofore reserved for horse units.

U. S. Army Air Corps.

EGGS UNBROKEN AFTER PARACHUTE LANDING

Book Reviews

By Lieutenant J. W. Rudolph, *Infantry*

THE RAMPARTS WE WATCH

By Major George F. Eliot

362 pages . . . New York: Reynal & Hitchcock

For the first time in the nation's history, the United States is embarking upon a large scale, peacetime strengthening of its national defense, a rearmament program reluctantly adopted but imperative in the growing uncertainty of peace throughout the world. It is a program supported wholeheartedly but, unfortunately, not overly intelligently by the nation, the majority of whose citizens are woefully ignorant of the needs, functions, and importance of defense. At the decisive moment, Major Eliot has stepped into the breach with a survey of America's naval and military requirements that remedies a vitally important deficiency.

Major Eliot bases his discussion upon the pessimistic but historically accurate concept that the final word in international relations is the use of force, and that as long as the United States wishes to maintain her position as a great power, she must be prepared to exert force when necessary. Unique among the nations, the United States is in a peculiarly advantageous position to do this. Her defensive problem is predominantly naval, which permits adequate security without maintaining a huge military establishment — always a danger to democratic institutions. He further advances the cold-blooded but eminently practical idea that no one is going to fight for us; we must be prepared to defend ourselves in every conceivable quarter.

From this premise, Major Eliot outlines a military and naval policy consistent with our foreign relations, both economic and political, and develops a national strategy based upon the principles of offensive-defensive war in which our territorial advantages may be fully utilized. Having established his conception of strategy, the author examines our military and naval establishments as they are today and as they are developing under present plans, then explains their needs in detail. He also makes some valuable criticisms and suggestions that are worthy of careful examination.

Major Eliot, a former reserve officer in the Military Intelligence Division, is probably as well qualified for his self-appointed task as any writer in the country today. Co-author with Major Ernest Dupuy, Field Artillery, of the widely read *If War Comes*, Major Eliot is possessed of both literary and technical military ability. This book should be required reading for all officers in the military and naval services, and might well be read to advantage in every college and high school class room in the country. Nothing in recent years has presented to the average reader such a balanced and complete picture of America's defensive needs.

OFFICIAL HISTORY OF THE CANADIAN FORCES IN THE GREAT WAR 1914-1919

Volume I: August, 1914-September, 1915

By Colonel A. Fortescue Duguid, *D.S.O., B.Sc., R.C.A.*

596 pages, with supplementary volume of notes and maps . . .

Ottawa: The King's Printer

Six hundred and thirty thousand Canadians heeded the call of Drake's Drum between 1914 and 1918; sixty thousand never came back. It is to these Dominion patriots that Colonel Duguid dedicates the first volume of the Canadian official history — a fitting memorial and a most welcome addition to the growing professional literature of the World War. If subsequent volumes maintain the high standard of Colonel Duguid's fine, dramatic writing, the Canadian account may rank with the best of the official narratives.

Volume One carries the Canadian Expeditionary Force through the first year of war, from August, 1914, to September, 1915. The story of mobilization, training, and the 1915 battles in Flanders is a recital of loyalty and desperate struggle in the face of unpreparedness. Ypres and the agony of the first gas attack are particularly well done.

In his introduction, Colonel Duguid explains something of the involved study necessary to present a true picture of modern war. To analyze the 1915 Battle of Ypres, the author traced the positions and activities of over eighty British and Canadian battalions at three-hour intervals for fourteen days of battle. The need for such painstaking accuracy has not sacrificed interest, however, the book maintaining a clear and fluid style throughout.

Not only as an excellent professional history, but as a thought-provoking story of the price of unpreparedness, this work is a valuable contribution to modern military literature. Volume One has set a high mark by which to judge the efforts of future military historians.

MACHINE GUNS: THEIR HISTORY AND DEVELOPMENT

By Lieutenant Colonel G.S. Hutchison

349 pages . . . London: Macmillan & Co.

The World War produced two weapons to complicate the modern jigsaw puzzle of battle. One was the machine gun, which forever ended mass tactics on the battlefield; the other, the tank, developed to break the stalemate imposed by the power of automatic weapons. Much has been written about tanks and their influence upon modern warfare. Colonel Hutchison's work is the first comprehensive study of machine gun development, a book whose major fallacy cannot dim its historical value.

Strictly speaking, the machine gun was not a product of the Great War. The search for multiple missile weapons, as old as military history, had ended nearly fifty years before 1914, but nobody had much faith in the solution. The World War demonstrated the terrible power of automatic arms and brought the machine gun into its own. Today, machine guns may be said to dominate the battlefield.

The author divides the history of machine guns into three distinct cycles. First phase was the Franco-Prussian War of 1870, in which the mitrailleuse failed to live up to its reputation through no fault of the gun itself. Tactical mishandling resulted in ignominious failure, and the machine gun went into the discard until the Russo-Japanese conflict. In that war the Maxim gun retrieved the reputation of repeating weapons and was taken up by the German army, whose head start in machine gun tactics gave it a battlefield superiority until 1917.

Much of the book is devoted to a history of the British Machine Gun Corps of the World War, a study that is both colorful and interesting. Colonel Hutchison's case for the machine gun as a separate arm is counter to post war developments, however, and not readily admissible. For all its tactical faults, it is a valuable contribution to military history and deserving of wide reading.

DER KAMPFWAGENKRIEG. [TANK WARFARE]

By General Ludwig R. v.Eimannsberger

236 pages . . . Munich: J.F. Lehmanns Verlag

An interesting and profound study of a complicated problem is presented by General von Eimannsberger, a retired general of the former Austrian army. Although it attracted little attention when first published in 1934, the book has constantly gained weight with students of tank warfare, especially since the outbreak of the Spanish Civil War. The latest edition has been accorded a more than respectful reception.

Defining mechanized warfare as tank warfare, the author bases his theories upon a careful examination of World War experience. The results obtained in the great tank attacks at Cambrai, Soissons, and Amiens, he believes, indicated to the Allies the effectiveness of massed tanks without revealing the way to exploit their success. The war ended with the problem unsolved and tank technique only half developed. Beyond establishing that tanks must be used in large numbers on a broad front and protected by supporting artillery, the Great War left the solution to the next conflict.

General v.Eimannsberger does not agree with the French tank theory of powerful and continuous artillery support, since this system imposes the same restrictions upon tanks that handicapped World War tactics. Discussing antitank measures, he feels that the defense should be as far forward as possible, the most important item being a counter weapon in the hands of the foot soldier.

The concluding chapters, in which the author sets up a zone defense, based on 1918 methods, and which include a map problem of a "Battle Before Amiens, August 8, 194–," are particularly interesting. Written by a man with little tank experience, the book, nevertheless, has the advantage of an unfettered mind behind it, the result being a methodically evolved series of sincere conclusions. The study is timely and important to all who view the problem of mechanized war with professional concern.

FORTY YEARS OF AMERICAN-JAPANESE RELATIONS

By Francis R. Dulles

268 pages . . . New York: Appleton-Century Co.

At a time when Japan's imperial ambitions in the Far East are the objects of distrust in the western world, this volume renders considerable service to the Japanese side of the picture, a service the Japanese are peculiarly unable to perform for themselves. It draws a picture of American policies and activities in the Orient which is far from flattering to the United States, and it pretty well proves that Japan cannot be too greatly criticized for doing what other nations, including this country, have done before. In fact, it might be even said that the author hints our objection to Japanese supremacy in Asia contains not a little sour grapes.

Relations between America and the island empire were not always marred by a cloud of distrust and economic rivalry. America reopened Japan to western civilization and for years led the world in supplying the progressive Nipponese with advice and materials needed in their program of modernization. Japan was a grateful satellite, guarding our interests in the orient and cheerfully buying our products, much to the satisfaction of our dollar diplomats.

Then came the Russo-Japanese War. Japanese victory was a little too easy and overwhelming for the peace of mind of the American business man. Japan had become a world power, with a mind, ambitions, and strength of her own, together with an uncomfortable tendency to resent the supremacy of the west in Asia. As her imperialism grew, however, that of the United States waned. We objected loudly to Japan's actions but were not willing to back our protests by force. The result was damaging to American prestige, while reprisals stiffened resentment in Japan.

The World War gave Japan her chance to expand to the Asiatic continent, and although she was eventually curbed, she gained tremendous advantages by the Treaty of Versailles without having worked very hard to earn her share of the spoils. Japanese liberalism, temporarily in power, and a stiffening western front, curtailed the Nipponese at the Washington Conference. The Nine Power treaty and the Naval Limitations treaties were never popular in Japan, however, and are now being thrown overboard. In the light of present affairs in the orient, this book, whose easy style and caustic humor provide a pleasant attraction, is most welcome and instructive.

ELIHU ROOT

By Phillip C. Jessup

Volume I, 563 pages; Volume II, 586 pages . . .

New York: Dodd, Mead & Co.

When Elihu Root died in 1937, at the age of ninety-two, he had been in virtual obscurity for nearly twenty years. The world of affairs had passed him by, yet at the turn of the century he was perhaps one of the world's outstanding statesmen. These two volumes, the first attempt to analyze the career of this remarkable man, explain why he was not only great but why his star has dimmed with the passage of time.

Theodore Roosevelt wrote that Elihu Root was the ablest man he ever met. It is a statement amply borne out by the records. A recognized leader of the New York bar for many years, he became the best Secretary of War in half a century, then served with equal brilliance as Secretary of State. Roosevelt, McKinley, and Taft relied heavily on him for advice. After one term in the Senate, he retired from national affairs in 1915 at the age of seventy, later devoting his energy to the World Court, which he helped organize but which he refused to serve except in advisory capacity. He refused consideration for appointment to the Supreme Court.

Closer examination of Root's achievements reveals the reasons for his lapse into obscurity. His talents were legal rather

than political; he lacked the emotional appeal to dramatize himself or his ideas, thereby missing his opportunity to leave an imprint upon the consciousness of his time. A mediator in matters of law, he was lacking in tolerance for human nature and was deeply conservative, a trait that grew hidebound with advancing years.

In his masterly analysis of Root's character and career, Mr. Jessup has enjoyed not only documentary evidence in abundance, but the confidence of the old man himself. He knows his subject thoroughly, has presented it with candor and understanding and with no attempt to apologize for its faults. It is an exhaustive study, original and scholarly. The survey of Root's tenure of the War Department, which produced the Army War College and the general staff, is one of the best things that has been written about an important period in the development of our military policy.

VAUBAN

By Sir Reginald Blomfield

230 pages . . . London: Meuthen

Sebastien le Prestre de Vauban, Marshal of France, was one of the world's greatest military engineers. Even today, when the fortresses he built have become museum pieces, his principles are studied and applied on a scale far greater than anything he ever visioned, yet the man himself is little more than a name in history books. It is unfortunate that Sir Reginald Blomfield fails to throw much light on his character and personality, for his study of Vauban's career is a scholarly review in all other respects.

The book is more than an account of Vauban's activity over a period of sixty busy years. It is a compact and comprehensive history of fortifications as they developed under the influence of gunpowder. To this development, Vauban made valuable and significant contributions.

The great French engineer was not, however, an inventor of new types of fortifications. Practically every form utilized by him was in use long before his time. Vauban's greatness lay in his method of applying those forms to the natural features of the ground, his keen appreciation of lines of fire, and particularly his use of outworks. It was Vauban who removed the center of resistance from the citadel itself to the outer defenses, a principle still used today. Paradoxically, he was just as good in offensive operations as in designing defenses. Many of his own fortresses fell before his well planned sieges.

In spite of exhaustive research on his military achievements, Vauban remains a poorly defined figure throughout Sir Reginald's work. The fault does not lie entirely with the author. Vauban's descendants have refused to allow his private papers to be published or consulted, with the result that little is known of his private life and character. Lack of intimate detail detracts from this otherwise scholarly biography.

BENJAMIN FRANKLIN

By Carl Van Doren

845 pages . . . New York: Viking Press

When ballots are cast to determine the 1938 Pulitzer Prize biography, Carl Van Doren's *Benjamin Franklin* will be among the leaders, if not first choice for the coveted award. The most discussed life story of an American statesman since Marquis James' *Andrew Jackson*, this monumental work is, in the words of William Allen White, "an achievement in literary architecture." A satisfactory biography of the first Great Commoner in American history could be nothing less and adequately cover the many sided activities of this remarkable man. Nevertheless, Mr. Van Doren has met the test with a magnificently proportioned volume that is authentic, complete, and definitive.

Volumes can be and have been written on any one of Franklin's numerous talents. Printer, editor, publisher, scientist, author, inventor, politician, and statesman, the great Pennsylvanian achieved distinction in all fields. His contributions to American nationality have made him immortal, while his scientific discoveries and inventions mark him as one of the greatest minds of his age.

Discussing reasons for adding his bit to the mass of Franklin biographical material, the author wrote that he considered his hero had been too long the property of smug, little people, and that it was time he was given back to the world as the man he was. In spite of his own maxims, Franklin was neither a saint, a frugal penny pincher, nor a prudent man. He was a human being with more than his share of human weaknesses, who loved life and lived it to the full all his four-score years.

In presenting Franklin as he really was, Mr. Van Doren has helped himself freely of Franklin's own writing, on the theory that no one could tell the story of his life better than Franklin himself. The result has a tinge of autobiography that is, however, more broad in scope than Franklin's own life story, with the added value of covering the last years of his life, a phase generally neglected by historians. A long work, not always easy to read, it is rich in detail and will undoubtedly become a standard work on colonial history as well as on the life of "Poor Richard."

THE MEDITERRANEAN IN POLITICS

By Elizabeth Monroe

259 pages . . . New York: Oxford University Press

Ever since man screwed up courage to drive his first crude ships beyond the sight of land, the Mediterranean has been a hotbed of economic rivalry and political ambition. In recent years, the old Mare Nostrum of Rome has again assumed world-wide importance as the dreams of a new Roman Empire threaten the lifeline of imperial Britain. This work is an attempt to discuss today's conditions in the Mediterranean as the average reader wants to read them — cheaply, lightly, and easily. The effort is generally successful.

Only four nations holding Mediterranean possessions count in the struggle now going on there, according to Miss Monroe. They are Great Britain, France, Italy, and Turkey. It is because all four have divergent and selfish outlooks upon the Mediterranean scene that the inland sea looms ever larger upon the world horizon.

To Britain, the Mediterranean is the lifeline of empire. In order to maintain her prestige, keep the reins over her far-flung provinces, and because the presence of British warships there is good advertising, England must maintain her hold in the Mediterranean. To France, the Mediterranean is a convenient and necessary route for transporting man-power from her North

African colonies in the event of another war with Germany, while Turkey utilizes the rivalry of other nations to feather her own nest. Italy is the real trouble-maker, although her geographical position is both Mussolini's strength and greatest weakness.

Four influences are at work in the Mediterranean. Italian ambition, the conservatism of England and France, and the resurgence of Arab national feeling complicate the peaceful solution of the rivalries of Europe, which have been raised to white heat by Germany's march to the east. Written with little bias, in a simple and assured style, the book is worth more than casual perusal.

BUILDING THE BRITISH EMPIRE

By James Truslow Adams

438 pages . . . New York: Charles Scribner's Sons

The eminent author of much popular American history spent six years in England before applying his talented and prolific pen to a study of the British empire. As a result, the first two volumes on the development of the commonwealth is a welcome addition to the story of England, at a time when the empire is experiencing critical days. This highly readable account of the structure and growth of Great Britain will undoubtedly be popular.

Volume One traces the growth of the British state from Roman times to the surrender of Cornwallis at Yorktown, an event which cost England her American colonies and disrupted what Mr. Adams calls the "first empire." Primarily a political history, the work is a swiftly moving, factual narrative in which detail is sacrificed in order to tell the whole of a long story without becoming involved in controversy. It is English history in traditional form and extremely interesting style.

The analysis of English character, which the author believes to be the backbone of the empire, is the high light of the book. That character, manifest in a world-wide loyalty to the crown and an inborn sense of duty, has been molded by four forces — religion, sport, the ideal of a gentleman, and "snobbishness." Mr. Adams is at some pains to defend the good points of the latter.

Although the book gives little evidence of profound thinking or deep research, it is clearly written and entertaining; a work that succeeds in drawing a pleasant picture of a nation which the author admires. It has been criticized for inaccuracy of detail, but its sins are of more concern to specialists than to the general reader. Briefly, James Truslow Adams is at his best, which is always excellent.

BLOOD AND STEEL

By Bernard Menne

407 pages . . . New York: Lee Furman, Inc.

The munitions industry has been a hulking and most uncomfortable target for the world's spotlight these past several years, during which it has been pretty effectively branded an unsavory though highly lucrative trade. This volume, written by a former employee of the great German firm of Krupp, is a merciless revelation of the ethics and power politics of the business a practiced by the Essen armament manufacturers. Bulwarke by official records, legal sources, and authorized biographies, i has the ring of authenticity.

Herr Menne relates the history of the house of Krupp fro its inception as a small cannon foundry in 1807 to its part i the remilitarizing of Nazi Germany. It is a lurid and informativ account, in which the vast network of world power and resource is fully revealed. Patriotism held little lure for the Essen canno kings except as it aided their grasping for profits and power. Krupp collected royalties from both sides in the Great War, i which it not only reaped a profit of eight hundred million gol marks but secured immunity for its valuable mines behind th Western Front.

A most interesting item is the description of the Paris gu that bombarded the French capital in 1918, a fabulous secre which Germany tried to guard even after the Armistice. A 112-foot behemoth, with a barrel 39 inches in diameter, th gun threw an 8½-inch shell weighing over 200 pounds. Thi great tube had a life of 65 rounds but had to be mechanicall slung and straightened after every shot. Naval crews, com manded by an admiral, fired the pieces on an average of onc every 20 minutes for 4 months, computing data from reports o an extensive spy system, supplemented by the Paris newspapers.

Critical of Krupp practices and definitely hostile, Mr. Menn never allows his dislike to be warped by bitterness. His tone i calm throughout; his writing clear and simple.

THREE HARBOURS

By F. Van Wyck Mason

694 pages . . . Philadelphia: J.B. Lippincott Co.

The best historical novel since *Northwest Passage* is F. va Wyck Mason's lusty tale of Tidewater Virginia, Boston, an Bermuda on the violent and uncertain eve of the America Revolution. More than a mere adventure story, however, it i a colorful picture of life and thought in a neglected section o the colonial scene. Quite apart from his story, the author ha created a vivid account of pre-revolutionary customs, habits, and activities.

Youthful Rob Ashton, struggling to rebuild a once pros perous coastwise shipping business, asked nothing more tha to be allowed to continue the trade undisturbed by the alarm of politics. His conservative lack of political convictions ou lawed him by both factions, however, while the well-meanin but mistaken actions of his Tory wife brought him to grief an drove him from Virginia to Bermuda where his politics and hi business underwent a remarkable change for the better. Th stormy course of his troubles and the adventures of those wit whom he came in contact make a red-blooded and skillfull interlocked tale, whose interest is in direct proportion to it length.

Character analysis is never very deep in this novel, whos people are generally likeable but often exasperating in the short-sightedness. A memorable passage is the account of th battle of Bunker Hill, a fine piece of dramatic writing, whi numerous incidentals that provide a rich and authentic back ground give evidence of extensive and careful research.

Reading Course for Officers

War Department Bulletin, 1928

List of selected books relating to historical, political, economic, and military subjects, published for the information of the service.

This list is divided into sections corresponding to the several periods of an officer's service. Remaining sections will appear in future editions of the Quarterly. (For First Period, see the June 1938 Quarterly, page 142; for Second Period, see the September 1938 issue, page 55.)

THIRD PERIOD (AVERAGE FOUR YEARS)

(INTERVAL BETWEEN ADVANCED COURSE AND GENERAL STAFF SCHOOL)

MEADE'S HEADQUARTERS, 1863-65. (Lyman's letters) 1 vol. (George R. Agassiz)

LIFE OF LORD KITCHENER. 3 vols. (Sir George C.A. Arthur)

THE RISE OF AMERICAN CIVILIZATION. 2 vols. (Charles A. and Mary E. Beard)

THE HOLY ROMAN EMPIRE. 1 vol. (James Bryce)

THE DARDANELLES. 1 vol. (Sir Charles E. Callwell)

THE STORY OF PHILOSOPHY. 1 vol. (William J. Durant)

PRINCIPLES OF WAR. (Ferdinand Foch. Hilaire Belloc, translator)

PERSONAL MEMOIRS OF U.S. GRANT. 2 vols. (Ulysses S. Grant)

THE RUSSIAN ARMY AND ITS CAMPAIGNS IN TURKEY, 1877-1878. 1 vol. and atlas. (Francis V. Greene)

THE WAR IN CRIMEA. 1 vol. (Sir Edward B. Hamley)

THE MONROE DOCTRINE. 1 vol. (Albert Bushnell Hart)

TANNENBURG. 1 vol. (Sir Edmund Ironside)

AMERICA'S FOREIGN RELATIONS. 2 vols. (Willis F. Johnson)

THE MARCH ON PARIS AND THE BATTLE OF THE MARNE. 1 vol. (Alexander von Kluck)

THE INFLUENCE OF SEA POWER ON HISTORY, 1660-1782. 1 vol. (Alfred T. Mahan)

AN AIDE DE CAMP OF LEE. 1 vol. (Sir Frederick B. Maurice)

STATESMEN AND SOLDIERS OF THE CIVIL WAR. 1 vol. (Sir Frederick B. Maurice)

THE FRANCO-GERMAN WAR OF 1870-71. 2 vols. (Helmuth von Moltke)

LIFE OF VOLTAIRE. 2 vols. (James Parton)

THE MEXICAN NATION. 1 vol. (Herbert I. Priestley)

THE WAR IN THE FAR EAST, BY THE MILITARY CORRESPONDENT OF THE TIMES. 1 vol. (Charles A Court Repington)

HISTORY OF THE UNITED STATES FROM THE COMPROMISE OF 1850. 7 vols. (James F. Rhodes)

AIR WARFARE. 1 vol. (William G. Sherman)

LINCOLN, AN ACCOUNT OF HIS PERSONAL LIFE. 1 vol. (Nathaniel W. Stephenson)

MY CAMPAIGN IN MESOPOTAMIA. 1 vol. (Sir Charles V.F. Townshend)

NAN SHAN AND PORT ARTHUR, 1911. 1 vol. (N.A. Tretyakov)

HISTORY OF CHARLES XII, KING OF SWEDEN. 1 vol. (Francois M.A. De Voltaire)

THE LIFE OF JOHN CHURCHILL, DUKE OF MARLBOROUGH. 2 vols. (Garnet J. Wolseley)

"To conduct a modern war successfully, a nation must have a program not only for the raising, organizing and training its manpower, but also for their supply and equipment."

—Assistant Secretary of War, Louis Johnson.

Library Bulletin

Books Added to the Library Since September 1938

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Beckman, Harry. — **Treatment in general practice.** 1938 [610]

Berger, Adolph. — **Principles and technique of oral surgery.** 1938 [617.6]

Binns, Archie. — **Laurels are cut down.** 1938 [M 9403-B3-F.73]

Bisson, T.A. — **Japan in China.** 1938 [M 951-A]

Blomfield, Sir Reginald. — **Sebastien le Prestre de Vauban, 1633-1707.** 1938 [M 944-B92 (VA)]

Boardman, Roger Sherman. — **Roger Sherman: Signer and Statesman.** 1938 [973-B92 (SH)]

Brady, Robert A. — **The spirit and structure of German Fascism.** 1938 [943-A]

Bridges, Lieut.-Gen. Sir Tom. — **Alarms and excursions.** Reminiscences of a soldier. 1938 [M 942-B92 (BR)]

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Butterfield, Jack C. — **Men of the Alamo, Goliad and San Jacinto.** 1936 [M 9764]

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Dunlop, Colonel John K.—**The development of the British Army, 1899-1914.** From the eve of the South African War to the eve of the Great War, with special reference to the Territorial Force. 1938 [M 203-C.42-C]

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Greenwall, Harry J. — **Pacific scene.** 1938 [M 950]

Haden, R.L. — **Dental infection and systemic diseases.** 1936 [617.6]

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HISTORICAL ILLUSTRATION
ESTIMATE OF THE SUPPLY AND EVACUATION SITUATION

Rarely in the history of military operations does the student find recorded a satisfactory account of how the supply and evacuation situation was met, what the important factors were, how these factors were evaluated, what alternatives were considered, and by what reasoning the plan of supply was determined. Usually if the operation was successfully supported by the supply agencies no mention is made of their problem; if the operation failed because of the failure of the supply system this fact is merely recorded as the reason for the failure.

An exception to this general rule is found in the *Personal Memoirs of W.T. Sherman*, Volume II, in the chapters devoted to the so-called "March to the Sea." General Sherman discusses the strategical aspects of the campaign and the peculiarities of the supply situation. His reasoning and evaluation of the factors involved in the supply problem are clearly set forth, and the plan adopted is clearly given in Special Field Orders No. 120, dated November 9, 1864.

General Sherman definitely made an estimate of the situation, assisted by various staff officers, particularly General L.C. Easton, chief-quartermaster, and General Amos Beckwith, chief-commissary. This estimate was made, not completely at any time, nor in the form which is presented below; but it clearly covered all essential factors, and was developed concurrently with the strategical estimate sometime between the dates 20 September and 9 November, 1864.

As an illustration of the application of the estimate of the supply and evacuation situation to an actual campaign, General

Sherman's estimate has been extracted from his own record, and arranged in the form now used at this school. The wording of the estimate as reproduced is given in school parlance, but supporting references are shown to substantiate each statement.

The estimate follows:

1. So Much of the Strategical (or Tactical) Situation as Affects Supply and Evacuation:

a. Own. — Briefly state the Commander's plan to be supported, and general locations of the major elements of the command resulting from this plan:

To advance in four columns from Atlanta to Savannah, thence to Richmond from the south for the purpose of crushing the heart of the Confederacy and of cooperating with the Army of the Potomac against Richmond. (*See letter to General Grant, page 115; telegram to General Grant, pages 153-154; Special Field Orders No. 120, paragraph 2, page 175; and statements pages 170, 179 and 220.*) The march to Savannah to be made in 20 marching days — 15 miles per day.

b. Enemy. — (1) *Major capabilities expressed in general terms which may affect our supply and evacuation plans.*

Hood's army can return to Atlanta and definitely cut line of communications east of Atlanta, or between Chattanooga and Atlanta, after our army has started its advance. During preparations for march Hood can only reach our line of communications by employing his cavalry and Wilson can check-mate this move.

After march begins Hood cannot overtake our army to attack in rear. (*See letter to General Grant dated November 2, 1864, page 165; General Grant's letter to General Sherman, November 1, 1864, page 164; also General Sherman's statements on pages 153, 162, 164, 165 and 170.*)

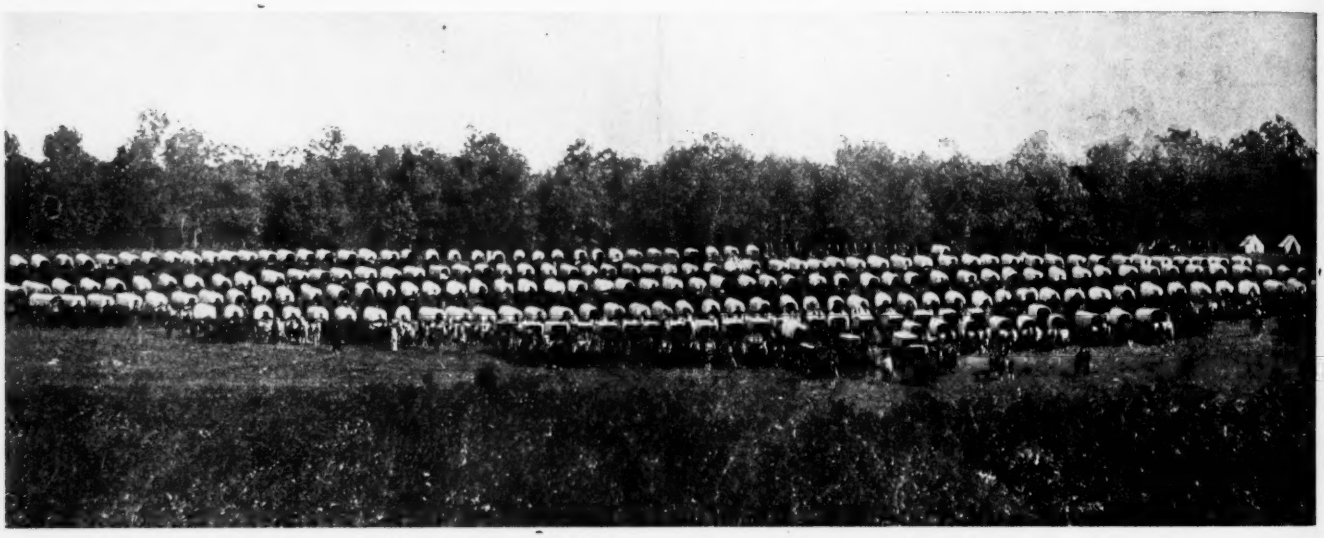
(2) *Minor capabilities, such as raids by aviation, mobile ground forces, or sabotage.*

Trains and other service installations can be attacked by cavalry. Columns are subject to harassing action by partisan forces; roads can be obstructed and bridges burned by hostile inhabitants. (*See letter to General Grant, page 115, and General Thomas' telegram, page 169; statement page 187 and Special Field Orders No. 120, paragraph 5, page 175.*)

2. The Supply and Evacuation Mission. — *a. Period considered and reasons.*

15 November — 4 December, 1864, both dates inclusive. Distance from Atlanta to Savannah about 300 miles. Daily march of the columns to be about 15 miles, therefore twenty days required for the operation. This period becomes the first phase of the operation. In the movements north from Savannah, the army will operate from a base at Savannah or Port Royal in cooperation with other federal forces. Conditions affecting supply after first phase of operation are not known at this time, hence definite plans cannot be made beyond the arrival at Savannah — about the 4th of December. (*See pages 162, 175, 179, and 220.*)

b. Supplies and replacements required. — (Use conveniently large units.)



A Part of the Field Trains of General Sherman's Army

Nature	*Quantity*	*Where To Be Delivered*	*When Required*	*Remarks*
Field rations and grain	20 d/s rations 5 d/s grain	To corps trains	Prior to Nov. 15	Supplies to be transported in trains of column or delivered daily from railhead to troops d/s reduced to 3 lbs. per man per day (2350 tons).
Gasoline and oil				
Small-arms ammunition	200 rounds per rifle	To corps trains	Prior to Nov. 15	Total required 12 million rounds (600 tons), 1/5 of supply to be carried by men.
Artillery ammunition and chemicals	200 rounds per gun	To corps trains	Prior to Nov. 15	Total 65 guns @ 200 = 13,000 rounds to be carried in corps trains (16 tons).
Miscellaneous	One extra set of clothing to each man	To troops	Prior to Nov. 15	Each man to carry extra set of underwear, shoes, socks and trousers (60,000 each); none to be carried in corps trains or reserve.
Animals	1500 mules or horses	To troops and trains	During march	Estimated replacements are based on 10% casualties.

c. *Evacuation.* — (1) A brief statement as to estimated number of casualties to be evacuated.

Only march casualties and casualties resulting from minor covering force actions.

(2) Other major evacuation factors.

All defectives and casualties in hospitals and surplus supplies to be evacuated to Chattanooga and Nashville prior to November 15, 1864. (*See pages 158, 159, 167, 168, 172.*)

3. MEANS AVAILABLE. — *a. Supplies and replacements.*

	Field Rations and Grain	*Gasoline and Oil*	*Small-arms Ammunition*	*Artillery Ammunition and Chemicals*	*Miscellaneous*	*Animals*	*Remarks*
On hand	10 d/s rations (5 d/s grain)		600 tons	16 tons	Ample	17,000	In depots at Atlanta and with troops
En route	20 d/s (rations only)		20 d/s	20 d/s	20 d/s		In depots at Chattanooga
Credits	Reserves in depots at Nashville — level not stated but probably not less than 30 days						
Local resources	5 d/s		none	none	none	Ample to meet replacements	(*See pages 115 and 177.*)
Deficiency	none		none	none	none	none	

Summary of conditions with respect to paragraphs 2 *b* and 3 *a:*

There is no deficiency to be expected initially. Requirements are based on the minimum necessities. By utilizing local resources reserves in corps trains should not drop below 10 d/s, and daily automatic supplies can be suspended. (*See pages 176, 177, 168, 169 and strength tables on pages 172 and 173.*)

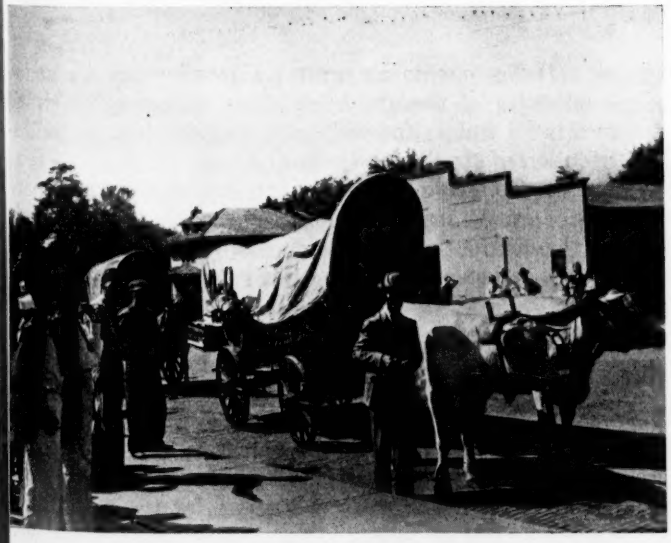
b. Transportation facilities. — State briefly the facilities available under the following headings:

(1) *Rail.* — (a) *Lines (capacity and condition):*

Two single-track rail lines are available for the supply of the army in its advance:

(i) Atlanta — Augusta — Savannah.

(ii) Atlanta — Macon — Savannah.



SLOW, BUT EFFECTIVE IN 1861-1865

Both in operating condition (capacity assumed to be the same as on the line: Chattanooga — Atlanta which was ample for the supply of the army prior to November 15). (*See Map opposite page 170.*)

(b) *Rolling stock — quantity and condition:*

Ample. (*See pages 167 and 170.*)

(2) *Roads.* — (a) *Highways, condition and capacity, terrain, etc.*

All roads are dirt — crossing many streams — condition of bridges unknown. In wet weather, roads, bridges and culverts, probably require work by engineer and labor troops. Muddy condition of roads may require assistance by troops in moving corps trains. Crossing of streams will in some instances require pontoon equipment, particularly in vicinity of Savannah. (*See letter to General Grant, page 115.*)

(b) *Land transport — cargo capacity, condition, availability.*

2500 escort wagons, capacity 3000 pounds, available on 10 November at Atlanta. Condition — good. (*See pages 167, 176, 208.*) A limited number of farm wagons can be procured locally along line of march. (*Statement on page 208 indicates this fact.*)

(3) *Water.—Waterways, docking facilities.*

None available during period.

c. Labor. — Briefly state status of labor, organic and civilian.

Organic labor insufficient in view of probable work on roads — at least a battalion of 1000 men per corps will be required. (*See Special Field Orders No. 120, paragraph 8.*)

4. PLANS OF SUPPLY AND EVACUATION. — A general statement of the various plans of supply and evacuation considered feasible for the support of the Commander's plan. Under each plan of supply and evacuation, *the lines of communications (including installations)*; the method, time, and place of delivery of supplies; and the general protective measures necessary should be given.

a. Lines of communication:

(1) Extension of present line from Atlanta via Augusta to Savannah.

(2) Extension of present line from Atlanta via Macon to Savannah.

(3) Abandonment of present line of communication, and operation without base or line of communication until arrival at Savannah. (*See telegram to General Beckwith, page 159.*)

b. Trains:

(1) To transport all reserve supplies in an army train.

(2) To operate no army train, but assign to each corps approximately 600 wagons and decentralize transportation and distribution of supplies to corps. (*See Special Field Orders No. 120, page 175.*)

(3) To attach to each corps a pontoon train (900 feet of bridge). (*See Special Field Orders No. 120.*)

c. Level of supplies:

(1) On the basis of three pounds per day per man to carry 20 d/s in corps trains — to maintain a level of supply

of not less than ten days at all times in corps trains by resort to local procurement.

(2) To carry only sufficient ammunition, all classes, to supply the army in minor covering force actions.

(3) To maintain no reserve of Class II, III and IV (less ammunition) in corps trains. (*See Special Field Orders No. 119, page 174.*)

d. Labor:

(1) To direct corps commanders to organize one pioneer battalion (negro labor).

e. Local procurement:

(1) To authorize brigade commanders to resort to local procurement of rations, forage, and animals. (*See paragraph 4, Special Field Orders No. 120, page 175.*)

(2) To authorize subordinate unit commanders to resort to local procurement. (*See paragraph 4, Special Field Orders No. 120, page 175.*)

f. Protection:

(1) Trains march with infantry columns. (*See page 390.*)

(2) Trains march in rear with escorts. (*See Special Field Orders No. 120, page 175.*)

5. EFFECT OF ADVERSE CONDITIONS. — Consider the maximum damage that can be inflicted on lines of communications or transport for each plan given in paragraph 4 and the time to repair this damage. If this time is excessive, consider alternative measures to be adopted, including a change in lines of communications.

a. Weather:

The operations are practicable in the winter time. Rain will cause bad road conditions but will not jeopardize the operations. (*See letter to General Grant, September 20, 1864, page 115.*)

b. Enemy:

(1) Hood's army can break any of the proposed lines of communications, causing interruption in communications of a week or ten days and will cost a thousand men per month. (*Based on experience prior to November 15. See pages 151, 152, and 158.*)

(2) Hostile forces in vicinity of Savannah may prevent contact with Federal Fleet at Savannah. (*See page 179.*)

(3) Columns are subject to harassing action by partisan groups and some sabotage may be expected en route. Hence if trains are marched in rear of columns, escorts will be required. Delays may be caused by road and bridge obstruction and destruction. [*See references under paragraph 1 b* (2).]

c. Alternatives:

(1) Only alternative to the plan contemplating a line of communications is to abandon the line of communications. [See paragraph 4 *a* (2) above.]

(2) If contact with Federal fleet cannot be made at Savannah, then make contact at Port Royal or Pensocola. (*See bottom page 179.*)

(3) When attack is imminent, forward and rear brigades should be unimpeded by wagon transport. (*See paragraph 3, Special Field Orders No. 120, page 175.*)

6. COMPARISON OF PLANS FOR SUPPLY AND EVACUATION.— With reference to each plan given in paragraph 4, state the decisive factor or factors which lead you to discard or adopt it. This will require a brief mental view of factors stated in paragraphs 1, 2, 3, and 5, and a comparative assessment of the advantages and disadvantages of your plans.

a. Lines of communication:

(1) To attempt to extend the line of communications via Augusta or Macon and maintain the daily supply to troops will require so many troops to defend this line that the combat strength of the army will be seriously reduced. (*See telegram to General Thomas, October 9, 1864, page 152.*)

(2) To abandon the line of communication will require the transportation of necessary supplies with the columns, augmented by local procurement. This plan will permit only the essentials in food, forage, ammunition, and evacuation facilities. A serious deficiency in all of these items may result if heavy fighting is necessary. However enemy capabilities indicate that only harassing action by partisan forces, weak in numbers, may be expected.

b. Trains:

(1) To operate an army train will cause an undue lengthening of the army formation, necessitating strong escorts for trains; and will cause undesirable delay in distribution of supplies to troops.

(2) To assign to each column (corps) a proportionate part of army transport will decentralize to corps commanders the distribution of supplies, shorten the time of distribution, and shorten the length of march formation of the army.

(3) To assign to each corps a pontoon train (900 feet) is in keeping with the principle of decentralization of service elements to corps commanders.

c. Level of supply:

(1) Twenty d/s of rations, on reduced figure of three pounds per day per man, will suffice for the anticipated marching time of twenty days. Local procurement will provide a reasonable safety factor and permit a level

A SPLENDID VEHICLE DURING THE CIVIL WAR

ten d/s to be maintained as a minimum level. Wagon transport will not permit a higher level — a lower level is inadequate.

(2) Since no serious opposition by organized hostile forces is to be expected before reaching the vicinity of Savannah, where communications will be established with the Federal fleet, 200 rounds per rifle and 200 rounds per gun is considered an ample reserve of ammunition. A greater amount will seriously increase transportation requirements.

(3) If rail communications are maintained, usual supplies of Classes II, III, and IV (less ammunition) can be supplied; if line of communications are abandoned, no reserves can be carried in army trains and therefore none will be available.

d. Labor:

Ample resources of negro labor are available. Anticipated work on roads and assistance to movement of trains suggests the organization of at least one pioneer battalion in each corps.

e. Local procurement:

Abundance of grain, forage, and rations are known to exist in the area to be traversed. A safety factor should be provided in the reserve of Class I supplies. Local procurement can maintain the reserves at a minimum level of ten days. All supplies should be collected and distributed under supervision of *brigade* commanders. Only horses and mules for the cavalry and artillery should be excepted. *(See telegram to General Grant, October 9, 1864, page 152; and telegram to General Hallock, October 19, 1864, page 158.)*

f. Protection:

To march columns in rear of combat troops will unduly lengthen the columns and require escorts. To march trains within the columns will obviate these difficulties but will require the infantry to march on the sides of the road.

7. CONCLUSION. — State briefly the supply and evacuation plan adopted, and that the commander's plan can be supported or cannot be supported adequately. Show what delay or other deficiency is unavoidable.

a. The following supply and evacuation plan is recommended:

(1) To abandon the line of communications, evacuating all surplus supplies and ineffectives and destroying rail lines at Atlanta and leading to the east.

(2) To maintain no army train, but to assign army transportation to corps on the basis of corps strength. Likewise to assign to each corps a pontoon train (900 feet).

(3) (a) To carry in each corps train twenty d/s (based on the reduced ration of three pounds) of rations, five d/s grain. By resort to local procurement, to maintain a minimum level of ten d/s of rations, and three d/s of forage.

(b) Ammunition with troops and in corps trains to be on the basis of 200 rounds per rifle and 200 rounds per gun.

(c) No reserve of Class II, III and IV (less ammunition) to be carried.

(4) To authorize corps commanders to organize one battalion of pioneer troops (negro labor).

(5) To direct that brigade commanders resort to local procurement, and supervise the collection and distribution of rations and grains, and animals (except for cavalry and artillery). To maintain a level of rations of ten d/s.

(6) To direct that transport columns be marched within the infantry columns, thus shortening the columns and affording protection to trains without detailing escorts. Leading and rear brigades to march unencumbered by trains.

b. This plan will support the tactical plan; however, since the exact status of local resources is unknown, a shortage of Class I supplies and animals may result. The reserve of ammunitions, all classes, represents a minimum based upon the assumption that only covering force actions will be fought. Should engagements of a more serious character be forced on us before we reached the vicinity of Savannah, a shortage of ammunition will result. *(See Special Field Orders No. 120, pages 174 and 175.)*

NOTE

General Sherman always provided fresh beef for the troops, when possible, by driving a herd of beef cattle along with his supply trains. This item is not mentioned in his plan of Class I supply, although he states in a letter to General Grant, dated December 16, 1864, that he started with a herd of 5000 cattle. This matter had no doubt become routine practice by the Quartermaster, as Special Field Orders No. 120 make no mention of it. *(See page 390.)*

TODAY'S TYPE OF TRANSPORTATION TO BE COMPARED WITH GENERAL SHERMAN'S

GENERAL PRINCIPLES OF SUPPLY

Lt. Col. C. F. Williams, C.E.

Subject	Paragraph
Mission	1
Importance of supply system	2
Mobility of supplies	3
Unit reserves	4
Army and base reserves	5
Need for reserves	6
Echelonment of reserves	7
Local procurement	8
Lines of communication	9
Impetus from rear	10
Hospitalization and evacuation	11
Organization of the theater	12
Communication zone	13
Regulating station	14
Territorial organization	15
Classes of supplies	16
Procurement and distribution	17
Conclusions	18
	19

1. SUBJECT.—The purposes of this lecture are threefold. First, to develop the doctrines upon which any satis-

factory supply and evacuation system must be based; Second, to give a picture of the framework around which the American system is built; and third, to show in a broad and general way how this system functions.

2. MISSION.—Lest we go too far astray in our enthusiasm over the details of this supply and evacuation system, let us see what its mission should be. (See Chart I.) Field Service Regulations contain our fundamental doctrines. They state: "The commander of the theater of operations organizes his rear in such a manner as to meet the needs of the combatant troops and enable them to carry out their assigned missions in the execution of the general plan of operations." Hence the mission of the rear echelons in all commands is to free the fighting forces from anxiety over meeting their supply requirements and over their prompt relief from the care of the wounded. "Service to the Line" must be the motto which is constantly before all agencies in the rear echelons.

3. IMPORTANCE OF SUPPLY SYSTEM.—Modern armies are becoming increasingly sensitive to the efficient functioning of the supply service. In the good old days when an army went to war, it lived off the country through which it moved even to the extent of killing off the civilian population if there was insufficient food for all. Later, armies dragged around with them large supply columns carrying those classes of supplies which were not available in the theater of operations. The strategy of the times was largely based on an effort to capture, destroy, or exhaust the enemy's supply columns before one's own gave out. Mechanical transport by rail and road has changed the picture, but not the primary doctrine behind it. Machine power has complicated immeasurably the catalog of supplies required; it has also greatly increased the speed with which supply from a distance can be effected; but the basic principle remains unchanged;—the commander who can first exhaust or choke off his opponent's flow of essential supplies has achieved the victory. How was the great German Offensive of March 21st, 1918 against the British Fifth Army finally stopped after it had completely broken through the defensive zone and had advanced some twenty miles? Was it the defense put up by the cooks and batmen and American railway engineers? No! The advance was halted by the failure of the supply system to get food and ammunition to the front-line troops even though adequate supplies were available in rear areas. This example brings out two doctrines upon which the supply system must be founded. Supplies must not only be adequate, they must also be made sufficiently mobile to reach the troops as needed. (Doctrines 1 and 2, Chart I.)

4. MOBILITY OF SUPPLIES.—These two requirements are fundamentally conflicting. The most mobile unit on the battlefield in difficult terrain is the individual soldier. To positively assure that he is adequately supplied with sufficient ammunition and food to fight and advance for several days would require him to carry these supplies on his back. But we know that his mobility decreases very rapidly as we load him down. Hence a compromise must be made. The same is true all the way up the line. The prescribed loads of unit trains are a compromise between the desire to have present with a unit all the supplies it may need for any contingency, and the desire to retain the mobility of the unit on all types of terrain. Field Service Regulations state this doctrine as follows "Troops must not be encumbered with a greater quantity of supplies and impedimenta than is necessary to assure their mobility and readiness for action." (Doctrine 3.)

5. UNIT RESERVES.—We know that the individual soldier can in general carry only sufficient food and ammunition to last him for something less than one day's combat. We also know that we can not expect the base depot commanders, perhaps hundreds of miles to the rear, to keep a continuous flow of supplies coming forward at the proper rate to keep Pvt. John Smith adequately clothed, equipped, and fed. What, then is the answer? A mobile depot, a rolling reserve of essential battle supplies, must keep pace with or follow closely behind Pvt. Smith as he marches and fights. Tables of organization and basic allowances prescribe three echelons of these rolling reserves. Those within the regiment include the ammunition carried on the combat trains, the rations carried on the rolling kitchens, and the additional rations carried on the field train. The second echelon, the division service trains, carry both ammunition and rations together with certain other essential equipment and supplies. The third echelon is carried in the corps service trains and is similar in composition to that of the division.

These groups constitute the unit reserves of their respective echelons. Generally these reserves accompany the units as they move. Their function is to enable the unit to continue in action for a few days if for any reason the normal flow of supplies from the establishments in rear is arrested. As supplies are expended from these unit reserves they should be replaced as promptly as possible in order to reestablish the unit as a self-sustaining entity. Therefore it is necessary to plan ahead, estimate the supplies required, and then arrange with higher authority to have them delivered as required. The doctrine may be stated: unit reserves are to be saved for unforeseen contingencies; also, future requirements must be anticipated. (Doctrines 4 and 5.)

CHART I

SUPPLY AND EVACUATION SYSTEM

MISSION: *Service to Combatant Troops*

DOCTRINES:

1. Supplies must be adequate.
2. Supplies must be mobile.
3. A surplus of supplies reduces the mobility of a unit.
4. Future requirements must be anticipated.
5. Unit reserves are primarily for unforeseen contingencies.
6. Reserve supplies must be echeloned in width and depth.
7. Supply must be safeguarded.
8. Resources of theater must be thoroughly exploited.
9. Standard gauge railways constitute the backbone of the supply and evacuation system.
10. Higher commanders must place required supplies *within reach of the trains* of their subordinate units.

11. Freedom of action of combatant troops must be maintained by prompt evacuation of casualties.

12. Sick and wounded must be evacuated only so far to the rear as may be necessary.

6. ARMY AND BASE RESERVES.—For echelons above the corps, that is, the army and the theater of operations there are no prescribed loads from which to constitute army and theater reserves. Each of these echelons establishes reserves of supplies in depots normally on the railroad line of communications. The theater depots, or communication zone depots, as they are called, are more permanent in character than those of the army. These latter are temporary establishments where local railroad sidings permit supplies to be unloaded on the ground or to be transferred to trucks. Supplies that require protection from the weather will be stored in existing warehouses or covered with tarpaulins. In mobile warfare situations time and construction materials will seldom be available for any extensive construction either of buildings or sidings for these army depots. Army depots are normally stocked with essential battle supplies sufficient only for a few days of operations. These army depots are the localities to which the empty trains of corps and divisions go to refill. Hence they are called "refilling points."

7. NEED FOR RESERVES.—Let us consider why these various echelons of reserves are required. A knowledge of their purpose will enable us to get a better picture of the entire supply system. The word reserve means something held back for a special purpose, to meet an unexpected development. Hence, these reserve supplies are required to enable the fight to carry on for a limited period if the supply line in rear breaks down.

There are other reasons, however. It may be for example, that the capacity of the rear establishments, and of the transportation net, for sustained deliveries is not equal to the peak demands of the armies. In this case, advantage must be taken of quiet periods to build up reserves to carry through the period of intensive operations. During the World War, for example, weeks and sometimes months were required to assemble the supplies necessary for a major offensive. Then too, even when the capacity of the lines of commumication is more than sufficient to meet the peak demands, there will always be a time lag between requisition and receipt. Supplies will seldom arrive in the theater exactly as needed. Furthermore, during certain periods the lines of communication may be largely occupied with the movement of reinforcements into the theater or the strategic movement of combat units within the theater.

The depot system may be compared to a reservoir in a water supply system whose rates of inflow from the rear and outflow to the front will be constantly varying. The level of water in the reservoir corresponds to the level of supply which the theater commander maintains in his depot system.

Base depots of the communication zone are also required because many supplies are received in bulk shipments which have to be broken up into smaller units before forwarding to the troops. Also some items may require assembling or processing prior to issue. Lastly, there is a great psychological factor, not to be neglected, in the assurance which an adequately stocked depot system gives to a commander that his men and guns will be fed throughout the projected operations.

8. ECHELONMENT OF RESERVES.—Field Service Regulations give us some good counsel as to the location of reserves. "The organization of supply and evacuation is controlled by the consideration that it must be capable of adapting itself to the constant and often rapidly changing conditions of military operations. * * * Provisions must therefore be made, to the extent that conditions permit, for such an echelonment in width and depth of supply and evacuation establishments as to meet the needs of the troops promptly and in safety." When we are dealing with large forces in mobile situations we should anticipate rapid advances on one part of the front, perhaps rapid retirements on others; and in many cases sudden shifts of the main tactical effort from one flank to the other with a corresponding shift in major demands for ammunition and other essential supplies. If we visualize correctly the character of the army and communication zone depots, we know that they can not be moved about to correspond with the fluctuations in the battle. That is why Field Service Regulations state that these establishments must be echeloned in width and in depth in order that supplies may be made available when and where required. (Doctrine 6.)

Unnecessarily large stockages close to the front tend toward rigidity of the supply system, and also risk the destruction or capture of essential supplies in case of local reverses. Hence the warning about safety in the quotation from Field Service Regulations. (Doctrine 7.)

9. LOCAL PROCUREMENT.—The theater of operations commander receives his supplies from the zone of the interior. Obviously he should reduce this lead as much as possible by exploiting the resources of the theater to the utmost. Food, forage, fuel, and bulky engineer construction materials may often be obtained in the theater and so reduce materially the burden on home resources and also the load on the line of communications from the zone of the interior. In France, the General Purchasing Board under General Dawes produced in Europe over half the tonnage required by the American Expeditionary Forces thus cutting in half the demand on the limited number of transports then available for overseas shipments. (Doctrine 8.)

10. LINES OF COMMUNICATION.—We have determined that an adequate supply system must include depots of supplies echeloned in width and depth. To enable these depots to function as intended we must have adequate means of transportation to get the supplies into the depots and to move them out. For forces larger than a division an adequate standard gauge railroad net is practically essential. It is true that larger forces operating in undeveloped regions have been supplied without the service of railroads, such as for example the Italian campaign against Ethiopia. This doctrine applies therefore only to theaters of operations in developed countries. (Doctrine 9.)

11. IMPETUS FROM REAR.—Those who have read what Field Service Regulations have to say about logistics may be wondering why it is not stated as the first doctrine that the impetus of supply is from the rear. This doctrine has been left to the last not only for emphasis but also in order to warn against a very common misunderstanding. Many students think that this catchily phrased principle operates

to relieve a commander of any effort other than to arrange for the distribution of supplies to his subordinate units within his own area; that adequate supplies will appear automatically in his rear area. On the contrary, it is the duty of each division and higher commander to foresee and to requisition the supplies to be required by his command sufficiently in advance to assure that the supplies are delivered when required. It is then his duty to make these supplies available within reach of the transportation of his subordinate units. Therefore, in place of the familiar doctrine that the impetus of supply is from the rear, there is substituted that it is the duty of higher commanders to furnish supplies within reach of the trains of their subordinate units. (Doctrine 10.) "Within reach" is a relative term. How far away and still be within reach will depend upon the type and amount of transportation available and upon the location and conditions of the road net. For example, an infantry division commander abides by this doctrines when he furnishes small-arms ammunition at a distributing point a few miles behind the front-line unit to which the animal-drawn infantry combat trains may go to replenish their loads. He complies with this doctrine equally as well when he designates the ammunition railhead or refilling point twenty-five miles or more in the rear as the point where the motorized combat trains of the 2d Field Artillery should go to draw their ammunition.

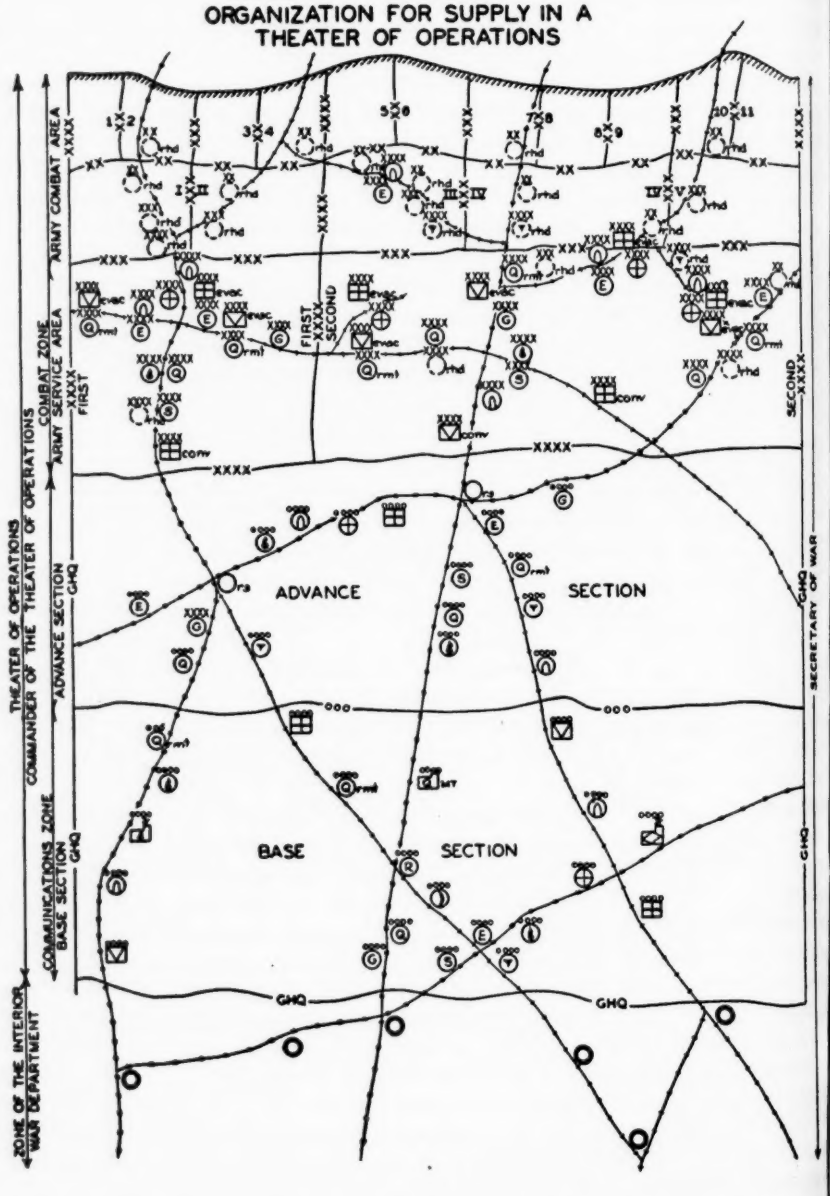
12. HOSPITALIZATION AND EVACUATION.—So far we have been concerned with the assembly of reserve supplies and their movement forward. Now let us consider briefly the opposite movement, that of the sick and wounded to the rear. The mission of the evacuation system is to conserve man-power, and to free the combatant units of responsibility for the care of casualties as promptly as possible. Commencing with the battalion and regimental aid stations, where first aid measures are taken, there is a constant sorting of casualties with the primary object of returning to their units those who are able to do duty and of evacuating to hospitals in the rear, where they can receive the best care, those requiring further treatment.

First aid treatment on the battlefield is rendered by the medical personnel attached to the various regiments at the unit aid stations. The divisional medical regiment has ambulances and personnel to clear the unit aid stations, and mobile hospitals to care for the sick and wounded until they are evacuated by the army. In order that the division hospital may move forward in support of its division as it advances, it is vital that the army clear this hospital promptly. (Doctrine 11.)

The army establishes evacuation hospitals at convenient points on the railroad net to which patients are evacuated from the division hospitals by the army ambulance companies and from which the casualties are moved to army convalescent hospitals or by hospital trains to the large general hospitals in the communication zone.

To conserve both man-power and transportation, the sick and wounded should be evacuated only so far to the rear as is necessary to insure their prompt recovery and early return to duty. The permanently disabled, and those whose prospective periods of recovery are long, are eventually evacuated to the zone of the interior. (Doctrine 12.)

SCHEMATIC DIAGRAM OF THE
ORGANIZATION FOR SUPPLY IN A
THEATER OF OPERATIONS



13. ORGANIZATION OF THE THEATER.—With these doctrines in mind, let us proceed to a consideration of the organization prescribed by Field Service Regulations for the supply and evacuation system. The area of responsibility of the division commander is delimited by the boundaries between divisions on the right and left, and by the division rear boundary. This latter boundary is prescribed to avoid conflict between division and corps rear installations.

The area between the rear boundary of the divisions and that of the corps is administered and secured by the corps commander. Here are located the bulk of the corps services and also such army depots and other installations as have to be well forward for the convenient service of the divisions. I want to bring out here the point that the corps as part of the army is not in the normal chain of supply and evacuation. Divisions receive their supplies and evacuate their casualties by arrangements direct with army. The corps is responsible for the supply and evacuation of corps troops only; not of its divisions.

The bulk of the army installations are in rear of the corps rear boundary and forward of that line prescribed by the theater commander as the rear boundary of the army. All territory forward of this line is designated as the combat zone; that in rear, the communication zone.

Visualize this picture as a "still" of a moving situation in which the locations of some installations and boundaries will be changed from time to time. Division and corps rear boundaries and railheads may be moved every day; army depots will be moved more infrequently, in a rapid advance perhaps every two or three days. When we speak of moving an army depot we do not want to get the picture of several thousand tons of ammunition, for example, being loaded on railroad cars and moved to a new location and unloaded. We visualize, instead, that supplies in one locality will be exhausted by issue and the depot reestablished in its new location with new supplies brought up from the communication zone depots. Thus all that has to be moved is the personnel required to operate the depot.

The depots of the communication zone are much more permanent affairs than those of the army. For example, the large general depot of the American Expeditionary Forces at Gievres was designed to store balanced stocks (less ammunition) for one million men for 30 days. It covered an area two miles wide by six miles long and included 250 miles of standard gauge railroad track construction.

Obviously depots and other establishments of this type can not be moved. If the armies advance to such a depth as to render their support unreliable from the existing depots of the communication zone, then new depots will have to be established farther forward in the zone which was formerly the army service area and the army's rear boundary moved forward.

14. COMMUNICATION ZONE.—We have mentioned the communication zone several times. Let us see now of what it consists. All that portion of the theater of operations in rear of the army rear boundaries is called the communication zone. In France it was first called the Line of Communications; later for a short time only, the Service of the Rear; and finally the Service of Supply. Within this area are located the depots and other supply establishments, the general hospitals, and the rest and training areas, required for the continuous service of the armies.

The division and corps rear echelons and the army service area are not normally placed under the command of a single commander but each supply chief operates his services within his area in accordance with the orders of his commander. The communication zone performs the same functions for the theater as a whole as does the army service area for each army. But the activities of the communication zone are so varied and complex that it is necessary to designate a separate commander therefor in order to relieve general headquarters from the multiplicity of detail arising from the operation and defense of these supply and evacuation establishments, and from the control of the operation of the railways and other means of transportation therein. The theater commander and his staff having determined upon the broad policies governing supply and evacuation can thus turn the detailed management of these affairs over to the commander of the communication zone, leaving themselves more time to devote to the strategical and tactical operations of the armies. This principle of decentralization having worked so satisfactorily in the American Expeditionary Forces, the thought arises why should not the same principle be applied to the smaller units. It was tried out in the proposed infantry division tests conducted by the 2d Division wherein a general officer was assigned to the command of the service echelon. From informal reports it is understood that the consensus of opinion was against the interposition of this additional echelon of command between the service elements and the division commander.

15. REGULATING STATION.—There is one installation which we have not yet discussed and which we constantly refer to in logistical problems. That is the regulating station. This agency controls the movement of all railroad trains between the communication zone and the combat zone. Its purpose is to assure the necessary flexibility in the supply system; to maintain the regularity and smooth movement of supplies and replacements to, and the evacuation of casualties, prisoners, and salvage from, the combat zone; also to avoid congestion at railheads in spite of unforeseen changes in location of combatant units.

Almost everyone has seen traffic jams on roads, with the resultant confusion and delay. Many have heard of traffic jams on railroads. They occur much less frequently, but they take much longer to straighten out. They are the bugaboos of the railway operating personnel. In order to obviate the chance of any jam occurring on the railroads leading from the communication zone into the army service areas, this traffic control agency, the regulating station, is established at a point offering suitable facilities near the army rear boundary. Here sidings must be available to sort and classify shipments from the communication zone depots and to make up trains for forwarding to their proper destinations in the combat zone. It can be appreciated that the regulating officer and his staff must be in close touch with the army in order to know the location of units and installations and their needs for supplies and evacuation. The regulating officer must also be advised of the anticipated shipments from communication zone depots. No trains may be dispatched forward from these depots except on his orders. Furthermore the regulating officer must be closely in touch with general headquarters in order to regulate the flow of supplies in accordance with priorities prescribed by the theater commander, or to arrange for any strategic movement of reserves by rail directed by GHQ. Serving as he does both the army and the communication zone, it is quite fitting that the regulating officer should be under neither of these commanders but should function directly under the orders of the the-

ater commander. Such was the organization in France and it is so prescribed in our Field Service Regulations. Regulating stations are located in rear of the combat zone at the junction of railroad lines leading into the army areas with lines parallel to the front. There is one regulating station for each army zone of action. The arrangement is desirable if the railroad net permits.

16. TERRITORIAL ORGANIZATION.—We are now prepared to consider the organization as a whole. Back of the combat units there must be sufficient room for the bivouac of trains, the operation of service elements, and the accumulation of supplies which the commander of each echelon from the division to the army requires for the efficient support of his combatant troops. These areas are administered and secured by their respective commanders. Only sufficient area should be allotted to each commander to satisfy his needs: each higher commander should push the rear boundaries forward as far as possible to relieve the subordinate commander of responsibility for the surplus area. The service area of the theater of operations as a whole, the communication zone, is organized under one commander in order to relieve the theater commander and his staff of much detailed administrative work. The commander in chief, naturally, is responsible for the efficient functioning of the entire machine. He has under his direct command the several army commanders, the commander of the communication zone and the regulating officers. He is supplied with his requirements in troops and material from the depots of the zone of the interior, functioning under the War Department.

17. CLASSES OF SUPPLIES.—Thus far we have covered the framework of the supply and evacuation system. Next we take up the general methods of procurement and issue, but before doing so, it is necessary to define the four classes or categories into which all supplies are grouped for convenience in administration.

Class I supplies are those which are consumed at a fairly uniform rate regardless of combat operations, and which do not require special adaption to meet individual requirements. Examples of Class I supplies are: rations, forage, fuel, gasoline and oil, and illuminants.

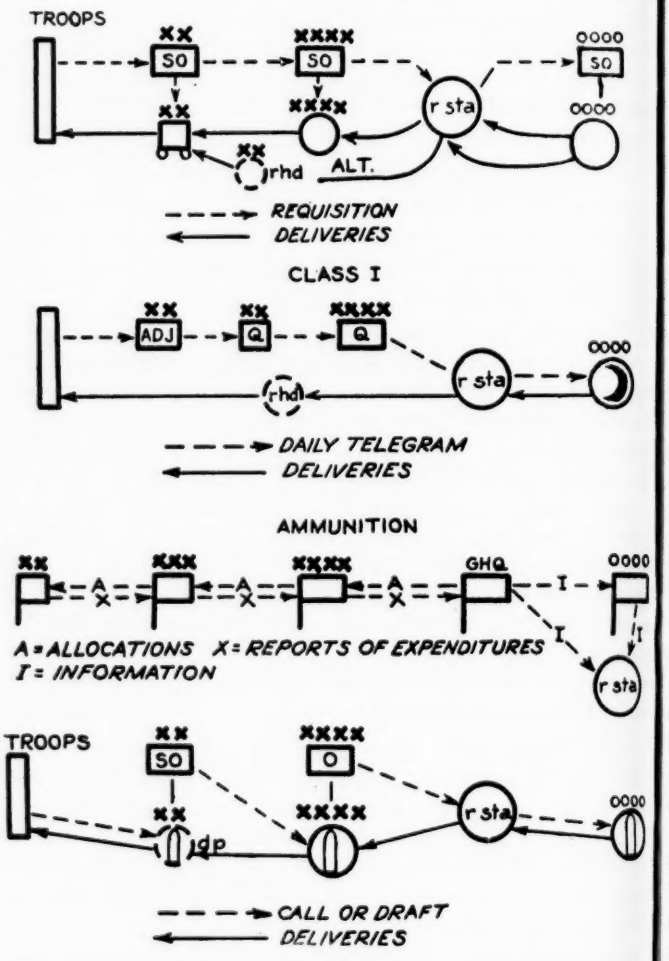
Class II supplies are those for the personal use of individuals which have to be sized to fit. Examples are: clothing and gas masks.

Class III supplies comprise individual and organization equipment prescribed by tables of organization and equipment:—some examples are rifles, trucks, radios, and shovels.

Class IV supplies consist of those items for which no allowance is prescribed. Examples are ammunition, construction materials, and medical supplies.

The requirements in Class IV supplies fluctuate widely, depending upon the type of operations in which the troops are engaged, while the demand for the other three classes is relatively uniform.

18. PROCUREMENT AND DISTRIBUTION.—*a. Class II, III, and IV (less ammunition).*—Next it is desired to show how the various supply installations function in the delivery of supplies to the troops. First we take up the general case; that is, all supplies except Class I and ammunition. When the troops need supplies furnished by a given service they make their wants known by requisition or otherwise, to the proper division supply officer. He issues what he has on hand and extracts the balance to the army supply officer who in turn authorizes the issue of what is on hand in the army depot. Any unfilled items are forwarded to the corresponding supply officer of the communication zone who ships the articles forward to the army depot where they are picked up by the division trains. Remember that the regulating officer, who has representatives of all supply services on his staff, must be cognizant of the supply needs of the army. Therefore all requisitions are forwarded through or copies are sent to the regulating officer.



Notice that no G-4's nor commanding generals appear in this picture. They must be kept continuously informed, however, by their special staff of the status of supply within their respective commands and of the support they are receiving from higher echelons. If the service of supply is not satisfactory, then of course they will intervene. The commander of each echelon assisted by his G-4 will announce the general plan of supply and evacuation as a guide for all service chiefs in the preparation of their plans. The commander and his general staff, however, are too busy with other affairs to take the time to approve or disapprove the thousand and one different supply items included in the requisitions submitted by their subordinate echelons. The tendency to overstate needs and to hoard supplies which may appear in some commands should be promptly discov

ered by staff inspections and this tendency should be arrested by proper disciplinary action.

When there are not sufficient quantities of supplies of a given class or category to meet all demands, the theater commander will limit the drawing power of each army for those particular supplies by allocating to each a credit, usually expressed in a given number of days of supply, which has to suffice that army for a stated period of time. The army commander in turn will allot credits in army depots to his divisions. A credit therefore is, in effect, the approval in advance of a requisition. Considerable saving in time and red tape results from the use of the credit system.

There is an alternative method of delivery shown on the chart whereby supplies are delivered direct to the division railhead, thus by-passing the army depot. This method will have to be used, of course, when the division is operating independently for supply and there are no army depots. It will also frequently be used during concentration.

This method may also be employed advantageously when supplies are required in quantity and the need therefor is known in advance. For example, take the case of a division about to be relieved from a period of active operations to go into army reserve for reorganization. This division requires several car-loads of uniforms and equipment. Even assuming that sufficient supplies are available in army depots, delivery at the railhead by the daily train direct from communication zone depots will save one rehandling at the army depot and will also save time and motor transportation. However, this alternative method is not the quickest and surest method of obtaining supplies. Too many agencies are involved. If the required supplies are available in an army depot, the surest way, and normally the quickest, for the division supply officer to get the supplies is to send some division trucks to the depot for them.

b. Class I supply.—Class I supply, that is, fuel, forage, rations, gasoline and oil, is normally on a daily automatic basis. The quantities of the various components, that is so many loaves of bread and so many pounds of meat, are not requisitioned, but instead the strength of each division in men and animals is telegraphed to the regulating officer who calls on the subsistence depots of the communication zone to forward supplies for the requisite strength of the command. At the regulating station, trains are made up, daily trains they are called, with sections containing the requirements for one division which are dropped off at the division railhead. Class I supplies do not go through an army depot.

c. Ammunition supply and credits.—Ammunition supply being so intimately connected with the tactical plan and so vital to the success of operations, we may expect each commander to exercise a very close supervision over its procurement and issue. Supplies available in the theater may be insufficient to meet all prospective needs, yet commanders must know how much is available to them for the proposed operations. This assurance is imparted by a system of credits whereby each commander is allocated a certain quantity of ammunition in the depots of the higher echelon, available on call and reserved to his use during a stated period. Theater commander allocates to armies and they in turn to corps, who may reallocate to divisions and corps troops. Expenditure reports are made periodically by each command echelon so that all command groups may know the status of their own and their subordinates' bank account in ammunition at all times. Anticipated needs which cannot be met from allotted supplies of ammunition must be curtailed by appropriate orders to subordinate commanders as to expenditures permitted during various phases of the action.

When the front-line units need ammunition, they make requisition by sending their empty combat train vehicles to the ammunition distributing points established by the division. When the supply at the distributing point gets low the proper division supply officer sends trucks from the service train to the army ammunition depot to refill, drawing against his credit therein. Army, however, being dependent upon the communication zone for rail transportation, sends its calls to the regulating officer, who arranges with the proper communication zone depot for shipment of the quantities of ammunition required to restock the army depots.

Engineer construction, fortification, and demolition material is much like ammunition, in that there are wide fluctuations in demands, and quantities are often limited. Engineer Class IV supply is therefore frequently handled on the same basis as is ammunition.

19. CONCLUSIONS.—The intent of this whole article is to give a visualization of the supply system of the theater of operations as a main pipe-line through which are constantly flowing from the zone of interior, and from resources of the theater itself, the supplies required by the front-line troops. Under the control of each command echelon, there is a reservoir of reserve supplies to take care of peak and unexpected requirements, and to take up the slack in time of delivery. These reserves of supplies must be disposed laterally to give flexibility and in depth to give mobility and elasticity to this supply system.

MAP PROBLEM No. 38

8-9 May, 1938

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III.—Solution of Second Requirement, Situation Continued, and Third Requirement	6-8
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SECTION I

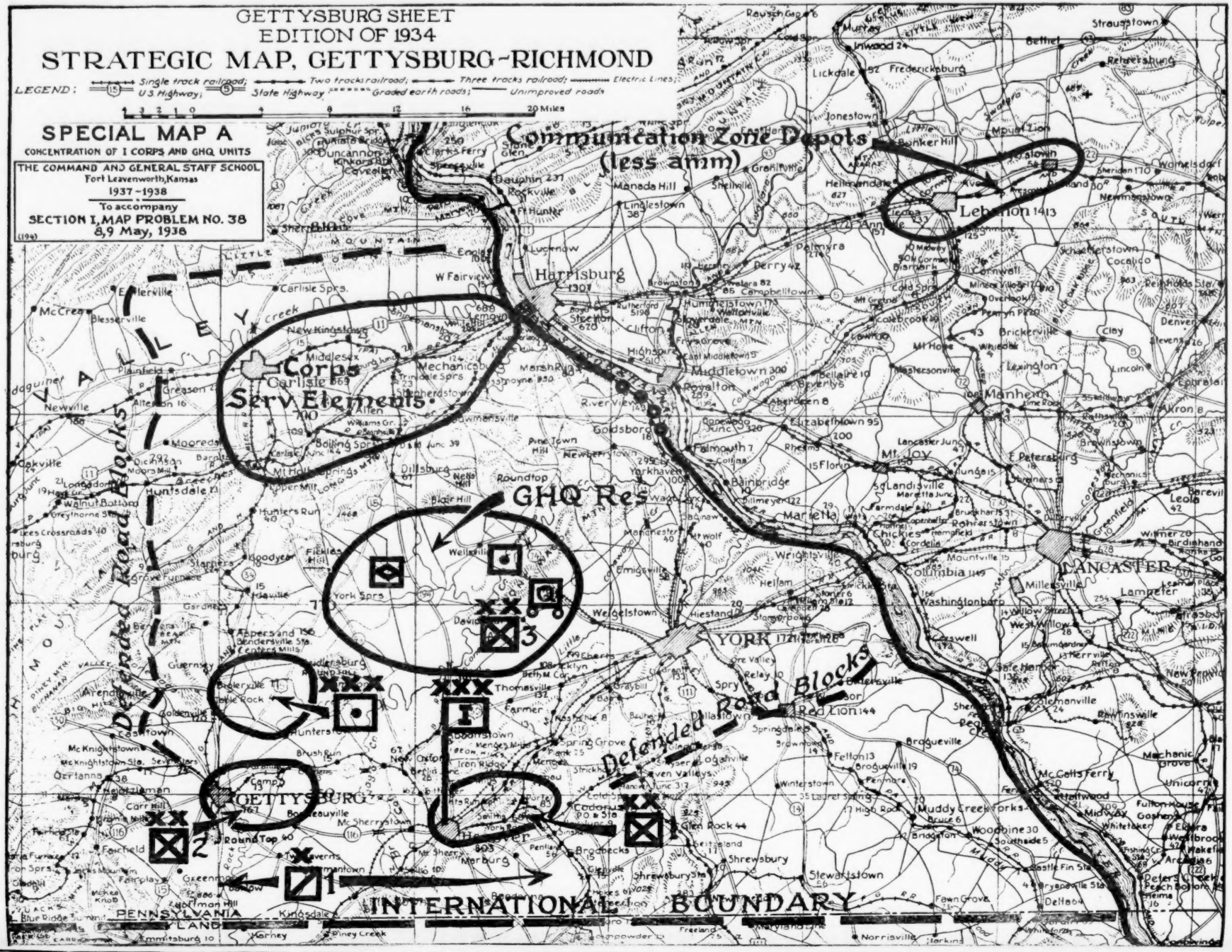
Situation and First Requirement

	Paragraph
General situation	1
Special situation (Blue)	2
First requirement	3

1. GENERAL SITUATION.—*a. Maps.*—Special Map A herewith. Form A to be issued with Section II.

b. Boundary.—Part of the boundary between two hostile states, Blue (north) and Red (south), is shown on Special Map A.

c. Opposing forces.—The political relationship between Blue and Red is strained and both are planning for active hostilities with formal declaration of war imminent. The main Blue forces are to be concentrated in an area


GETTYSBURG SHEET
EDITION OF 1934
STRATEGIC MAP, GETTYSBURG-RICHMOND
LEGEND: Single track railroad; U.S. Highway; Two tracks railroad; State Highway; Three tracks railroad; Graded earth roads; Electric Lines; Unimproved roads
SPECIAL MAP A
CONCENTRATION OF I CORPS AND GHQ UNITS
THE COMMAND AND GENERAL STAFF SCHOOL
Fort Leavenworth, Kansas
1937-1938
To accompany
SECTION I, MAP PROBLEM NO. 38
8,9 May, 1938
Communication Zone Depots (less amm)
Corps Serv Elements
GHQ Res
Defended Road Blocks
Defended Road Blocks
INTERNATIONAL BOUNDARY
PENNSYLVANIA
MARYLAND
VALLEY
MOUNTAIN
Harrisburg
Lebanon
Manheim
Middletown
Carlisle
Gettysburg
York
Lancaster
Columbia
Marietta
Hanover
Frederick
Chambersburg
Waynesboro
Hagerstown

east of the Susquehanna River. It is known that Red war plans contemplate the concentration of a reinforced corps of two or three divisions in the area between South Mountain and the Susquehanna River.

2. SPECIAL SITUATION (BLUE).—*a. Concentration.*—(1) *Organization of the I Corps.*—The I Corps, Lieutenant General A commanding, consists of the 1st and 2d Divisions, organic corps troops, and normal reinforcements as given in paragraph 1, Table 1, *Tables of Organization*, C&GSS, 1937.

(2) *Other units.*—The 3d Division, detached from the I Corps, and certain GHQ artillery, tanks, and motor units are to move into the area west of the Susquehanna River. These units are to be held initially in GHQ reserve.

(3) *Areas.*—The I Corps and GHQ units are to concentrate in the areas indicated on Special Map A; all movements to be completed by dark, 12 March.

b. Mission of the I Corps.—The mission of the I Corps is to invade Red territory upon the declaration of war and develop the hostile situation west of the Susquehanna River.

c. Probable date of declaration of war (D-day).—The probable date of declaration of war by Blue is 12 March.

d. The tactical situation at 7:00 PM, 9 March.—(1) The concentration is proceeding as planned.

(2) The 1st Cavalry Brigade, reinforced, is protecting the concentration.

(3) *Tentative plan.*—Beginning at dark, D-Day, the I Corps will advance, divisions abreast, toward the line: Keymar (350-722)—Manchester (382-729) (Special Map A).

(4) *GHQ reserve units.*—GHQ informed Lieutenant General A that the 3d Division, and the other units held initially in GHQ reserve, would be turned over to the I Corps should the tactical situation warrant this reinforcement.

e. Summary of the hostile situation.—(1) *Contact with the enemy.*—Hostile resistance in force can be expected soon after the boundary is crossed.

(2) *Enemy aviation.*—Reds are known to possess aviation of all types; bombing accuracy is reported to be good but supply of large bombs is limited.

(3) *Enemy mechanization.*—Reds have a limited number of small mechanized units.

f. Administrative situation at 7:00 PM, 9 March.—(1) *Rear boundary, combat zone.*—The west bank of the Susquehanna River as shown on Special Map A.

(2) The I Corps is responsible for the supply of all units in the area west of the Susquehanna River.

(3) The problem of evacuation of civilian inhabitants is so serious that the corps commander directed that staff plans be based upon the assumption that no local resources of motor transport, labor, or Class I supplies would be available for operations of the military forces in the area west of the Susquehanna River.

(4) A regulating station is in operation at Lebanon (425-812).

(5) *Communication zone depots.*—(a) *Class II, III, and IV (less ammunition).*—Depots to supply all units to be concentrated west of the Susquehanna River are being stocked in Lebanon and Myerstown (433-815).

(b) *Ammunition.*—Depots stocked with all classes of ammunition are located about 200 miles northeast of Lebanon.

(6) *Supply during the concentration.*—(a) *Class I.*—All units are to concentrate with prescribed unit reserves complete. Supply until 12 March will be from reserves, other than unit reserves, brought in by units. Beginning the night of 12-13 March, supply will be by daily train to railheads.

(Special note: Assume all GHQ units have as unit reserves 3 field rations and 3 days of supply of gasoline and oil.)

(b) *Class II, III, and IV (less ammunition) supplies.*—(i) During the troop concentration no railroad trains can be made available for bulk shipments of Class II, III, and IV (less ammunition) supplies west of the Susquehanna River. Units have been directed to be equipped completely before moving into the concentration area. Normal maintenance requirements and small miscellaneous shortages which may develop will be supplied by daily truck shipments direct from the depots at Lebanon and Myerstown.

(ii) The I Corps has been given, for the period D + 4 days, a credit of 10 days of supply in depots at Lebanon and Myerstown, for its own and GHQ units.

(c) *Ammunition.*—(i) All units will have their prescribed loads of ammunition.

(ii) A 1000-ton train of ammunition with a balanced load, all classes, is spotted at Lemoyne (380-800) as an emergency reserve.

(iii) The I Corps has been given, for the period D + 4 days, a credit in communication zone depots of 6 days of fire, all classes, for it own and GHQ units.

(iv) Ammunition trains can be forwarded so as to arrive at any point along the east bank of the Susquehanna River 24 hours after call upon the regulating station.

(7) *Medical service during the concentration.*—(a) *Evacuation.*—Evacuation is by the regulating station, on call.

(b) *Units.*—(i) All evacuation hospitals for men and all surgical hospitals will be located initially at Carlisle (352-795). Shortage of railroad rolling stock for the concentration will make it necessary to detrain these units.

(ii) The 901st Evacuation Hospital will be active, all others are to be inactive.

(iii) The 901st Veterinary Evacuation Hospital will be active at Brantsville (368-788).

(iv) The 1st Section 901st Medical Supply Depot will be at Carlisle.

(8) *Engineer information.*—(a) *Roads.*—Special Map A is correct as to location and type of roads; designation of type is shown under *Legend* on Special Map A. Roads other than those shown on Special Map A exist but are all dirt roads. In case of wet weather, dirt roads can be used only for animal-drawn and intermittent motor traffic.

(b) *Railroads.*—All railroads shown on Special Map A are in normal operation and will bear traffic as indicated in Table 17, *Reference Data*, C&GSS, 1937.

(c) *Bridges.*—All bridges shown on Special Map A in Blue territory are intact. Two (2) of the four (4) bridges at Harrisburg (383-804) are railroad bridges only. The bridge at Columbia (418-774) is both railroad and two-track vehicular.

(d) *Local resources.*—Sufficient stocks of road, railroad, and bridge material for any probable repair of these facilities in the corps area are available locally.

(e) *Engineer estimate of probable interruption in lines of communication.*—The corps engineer estimates that lines of communication west of the Susquehanna River cannot be interrupted completely by hostile aviation for a continuous period greater than 24 hours.

(9) *Protection of lines of communication.*—(a) *Bridges across the Susquehanna River.*—GHQ will provide strong antiaircraft protection for bridges at Harrisburg and Columbia; other bridges will be protected to a lesser degree. A representative of the Chief Engineer GHQ has informed Colonel "G-4" that in his opinion rail and vehicular traffic across the river cannot be interrupted completely for a continuous period greater than 24 hours.

(b) *Communications and establishments west of the river.*—At a conference between G-3, G-4, and the Commanding General 910th Brigade (L of C) it had been decided to recommend the establishment of a protected zone, the general outline of which is indicated on Special Map A. This recommendation had been approved by the corps commander.

(10) *Rolling stock.*—The Regulating Officer informed Colonel "G-4" that, after the concentration, he would be unable to permit more than four (4) freight trains (each 1000 tons) to be held indefinitely for use of the I Corps, and units attached thereto for supply.

(11) *Weather.*—The weather in this area at this time of year is extremely variable, changing quickly from clear and cold to heavy rains or snow.

g. Action of the corps commander.—At 8:00 PM, 9 March, Lieutenant General A, in conference with his general staff, directed Colonel "G-4" to submit recommendations for a general plan of supply and evacuation to support the tentative tactical plan which is to be placed in effect at dark D-day and the probable initial operations of the corps in accomplishing its mission.

3. First Requirement.—The conclusions and recommendations submitted by Colonel "G-4" to the corps commander.

NOTE

The initial tactical situation of this problem is, generally, the same as that of Map Problem No. 25 (Corps in Attack) published in September Quarterly. The student is cautioned to approach the solution of this requirement without regard to the specific future developments as presented in the previous problem.

Section II

Situation Continued, and Second Requirement

	Paragraph
Special situation, continued	4
Second requirement	5

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4. Special Situation, Continued.—*a. G-4 reports to the corps commander.*—At 9:30 PM, 9 March, Colonel "G-4" reported to Lieutenant General A at the corps command post. Colonel "G-4" stated as follows:

"The tentative tactical plan of the corps, and any probable operations that may result from it, can be supported by the supply and evacuation services utilizing available facilities and means.

"My proposed general plan for supply and evacuation is as follows:

"*Lines of communication:*

Rail. — Columbia — York — Hanover — Gettysburg system for bulk of traffic. *Alternative:* Harrisburg—Carlisle—Gettysburg system.

Roads.—Will permit supply and evacuation under any probable weather conditions.

Extension.—Roads and rail lines extending south into enemy territory are adequate but subject to hostile damage; no definite selection can be made at this time.

"*Battle reserves.*

Time of movement: Beginning the night of 12-13 March to move west of the Susquehanna River battle reserves of all classes of supplies.

Stockages: Class I: Railhead reserves of one (1) day of supply for all units west of the river.

Class II, III, and IV (less ammunition): Initially for all units west of the river, five (5) days of supply, all in corps depots, which amount is sufficient for at least three (3) days of any probable operations; minimum level thereafter two (2) days of operations (attack of a position).

Ammunition: One (1) day of operation (first day attack of a position) for I Corps only in a forward depot; one (1) day of operation (second day attack of a position) for I Corps only and two (2) days (attack of a position) for all GHQ units, in mobile reserve; thereafter minimum level for all units of two (2) days of operations (attack of a position, succeeding days).

"*General location of bulk of installations:* In the area: York—Gettysburg—Hanover, all inclusive.

"*General location of mobile reserves:* In the area: Lemoyne—Carlisle, both inclusive.

"*Credits:* Sufficient for at least four (4) days of any operations.

"*Priority of movement of supplies:* Ammunition and gasoline and oil to have first priority.

"*Evacuation:* Normal—by the regulating station.

"*Traffic:* Prior to combat all railroad train movements and all large truck movements of supplies or service personnel to be made under cover of darkness or weather conditions which unquestionably will prevent operations of enemy aircraft. During combat to continue this procedure as long as the supply situation will permit it.

"*Protection:* Protection afforded by L of C troops is considered adequate."

b. Action of the corps commander upon the recommended general plan of supply and evacuation.—Lieutenant General A considered Colonel "G-4's" recommendations and then said:

"Your plan appears satisfactory and is approved. I want you to consider the battle reserves of ammunition for two days of an attack of a position as to the absolute minimum. If facilities permit, build up the reserve west of the river not to exceed three days of probable operations for each class of ammunition. However, large concentrations

of ammunition must be avoided and there must be dispersion of activities incident to any daylight storage and issue."

Colonel "G-4" returned to his office at 10:00 PM.

c. Conference of G-4 and the corps special staff.—At 10:30 PM, 9 March, Colonel "G-4" and all members of the corps special staff met in conference at the corps command post at Hanover. The special staff was familiar with all tactical and administrative information given in Section I of this problem. Colonel "G-4" stated as follows:

"You are familiar with the situation. The commanding general has just approved my general plan for supply and evacuation, which I will now give to you. (Colonel "G-4" announces the plan given in paragraph 4 *a* supra including instructions of Lieutenant General A given in paragraph 4 *b*.) I want you to prepare your plans on the assumption that the enemy may be encountered soon after our leading elements cross the border. I have no additional instructions to give you at this time as I am not familiar with all detailed facilities of the announced lines of communication. Submit to me here your individual plans, to include labor, truck, and rail requirements, as soon as possible but not later than 1:00 PM tomorrow, at which time reassemble here for a conference. Wherever confliction in the selection of sites for installations may occur be prepared to recommend alternative locations."

d. Recommendations of the corps special staff.—At 1:00 PM, 10 March, a special staff conference was held in the G-4 office of the corps command post. Members of the special staff had reported to G-4 throughout the morning and pertinent items of recommendations had been posted tentatively on the G-4 operation map. Several members had been unable to confer with each other to coordinate proposed recommendations. The Special Map is a reproduction, *in part*, of the G-4 operation map at 1:00 PM, 10 March; that is, before G-4 took any final action on recommended special staff plans. Installations, mobile reserves,and units indicated on Special Map B are listed on Form A.

5. SECOND REQUIREMENT.—Action of Colonel "G-4" upon those special staff recommendations indicated on Form A.

NOTES

1. Reconnaissance showed that there were large freight sheds, with railroad sidings, as follows:

York: 8 sheds
Hanover: 4 sheds
Gettysburg: 3 sheds
Carlisle: 10 sheds
Lemoyne: 3 sheds

All other towns with car-siding capacity over 50: 1 shed each. Each shed has a capacity of 400 to 600 tons of Class II, III, and IV supplies.

2. Students will assume that all railroad sidings indicated on the Strategic Map as being *close* to an all-weather road are accessible to that road by an all-weather road connection.

SECTION III

Solution of Second Requirement, Situation Continued, and Third Requirement

	Paragraph
Solution of second requirement	6
Special situation, continued	7
Third requirement	8

6. SOLUTION OF SECOND REQUIREMENT.—Between 1:00 PM and 2:00 PM, 10 March, Colonel "G-4" took action upon the recommendations of the special staff as indicated upon completed Form A issued herewith.

SOLUTION OF SECOND REQUIREMENT
OF MAP PROBLEM NO. 38, 8-9 MAY, 1938

	Unit or Installation	*Location for Night 12-13 March as Recommended by Special Staff Officers*		*Action of G-4*		*Remarks (Special Staff)*	*Instructions of G-4 in Those Cases, If Any, in Which He Makes a Change in Special Staff Recommendations*
		Priority (1)	*Priority* (2)	*Approved Priority* (1) or (2)	*Change*		
	Railheads:						
1	1st Division (and 1st Cav Brig)	Hanover (803)	Smiths (68) (379-748)	(1)			
2	2d Division	Gettysburg (767)	Granite (13) (355-752)	(1)			
3	Corps Troops No. 1	Abbottstown (15)	New Oxford (67) (366-753)	(1)			
4	Corps Troops No. 2	York (1847)	Emigsville (58) (396-773)	(1)			
5	3d Division	East Berlin (19)	Dillsburg (67) (367-784)	(1)			
6	Other GHQ troops and corps troops in Carlisle area	Dillsburg (67)	Brantsville (286) (368-788)	(1)			
	Gas-Oil Railheads:						
7	No. 1	Plank (25) (382-756)	Eberts (199) (390-764)	(1)			
8	No. 2	New Oxford (67)	Guldens (73) (359-753)	(1)			
9	Remount Depot	Thomasville (132) (385-761)	Grantley (133) (395-763)	(1)		Stock 1200 animals	
10	QM Depot	York (1847)	Hanover (803)	(1)		Stock 1350 tons	
11	901st Evacuation Hospital	Carlisle (369)		(1)		Active	
12	902d Evacuation Hospital	Carlisle		(1)		Reserve	
13	903d Evacuation Hospital	Carlisle		(1)		Reserve	
14	904th Evacuation Hospital	Carlisle		(1)		Reserve	
15	901st Veterinary Evacuation Hospital	New Oxford (67)	Smiths (68)		*	Active	Move to Thomasville so as to be in vicinity of remount depot.
16	901st Surgical Hospital	Carlisle		(1)		Reserve	
17	902d Surgical Hospital	Carlisle		(1)		Reserve	
18	903d Surgical Hospital	Carlisle		(1)		Reserve	
19	Medical Depot	Carlisle		(1)		Stock 125 tons	
20	101st Ordnance Company (Hv Maint)	Hanover (803)	York (1847)	(2)			
21	Ordnance Depot	Hanover	York	(2)		Stock 315 tons	
22	Ammunition Depot No. 1	Bittinger (162) (370-751)	Eberts (199)	(1)		Stock 2500 tons	

	Unit or Installation	Location for Night 12-13 March as Recommended by Special Staff Officers: Priority (1)	Priority (2)	Actions of G-4: Approved Priority (1) or (2)	Change	Remarks (Special Staff)	Instructions of G-4 in Those Cases, If Any, in Which He Makes a Change in Special Staff Recommendations
23	*Mobile Ammunition Reserves:* 2 trainloads	Lemoyne (688)		(1)		2000 tons	
24	1 trainload	Wrightsville (40)			*	1000 tons	Locate in Lemoyne — Carlisle area in accordance with approved general plan of supply.
25	Signal Depot	York			*	Stock 155 tons	Locate in Hanover so as to be in vicinity of the corps command post.
26	Engineer Depot	Bittinger (162)	Eberts (199)	(2)		Stock 875 tons	
27	Chemical Warfare Depot	York	Hanover	(1)		Stock 30 tons	

SPECIAL STAFF RECOMMENDATIONS FOR MINIMUM TRUCK AND LABOR REQUIREMENTS

(NIGHT OF 12-13 MARCH)

	Service	Purpose	Trucks	QM Labor	Actions and Instructions, If Any, of G-4
28	Ordnance	Stock ordnance depot	None	40	All recommendations approved.
		Stock ammunition depot	192—2½-ton	1400	
29	Engineer	Stock engineer depot	24—1½-ton	none	
		Maintenance	48—1½-ton 48—2½-ton	none	
30	Signal	Stock signal depot	none	20	
31	Chemical Warfare	Stock CWS depot	none	none	
32	Medical	Stock medical depot	none	none	
33	Quartermaster	Class I distribution	none	50	
		Stock QM depot	24—1½-ton	250	
		Miscellaneous and reserve	96—1½-ton	300	

SPECIAL STAFF RECOMMENDATIONS FOR RAILROAD TRAIN REQUIREMENTS FOR RESERVES TO BE HELD MOBILE FOR AN INDEFINITE PERIOD

	Service	Trains	Purpose	Actions and Instructions, If Any, of G-4
34	Ordnance	3 (33 cars each)	Ammunition	One railroad train (33 cars) is allotted to medical service because only four trains will be available.
35	Medical	2 (21 cars each)	Two evacuation hospitals	
		1 (22 cars)	Two surgical hospitals	

NOTES

1. Type solutions are given under items 1 and 25.
2. Assume that all special staff estimates on amounts of stockages, trucks, and labor are correct.
3. Siding capacities are given in parentheses immediately following names of railroad stations.

7. SPECIAL SITUATION, CONTINUED.—*a. Events prior to noon, 15 March.*—(1) *Tactical.*—The I Corps, reinforced, advanced to the south and late in the afternoon of 13 March gained contact with a hostile force north of Westminster (372-717). A coordinated attack launched early the following morning by the 1st and 2d Divisions, supported by the corps artillery, met with considerable success. However, at daylight 15 March the hostile force launched a surprise attack and at noon the battle line was as shown on Special Map.

(2) *Tentative plans.*—G-3 had informed Colonel "G-4" his section had prepared the following tentative plans:

(a) To move the 3d Division by motor transport to either flank for an attack late this afternoon or early tomorrow.

(b) To relieve the 2d Division by the 3d Division using motor transport this afternoon or tonight, and resume the attack.

(c) To withdraw to a defensive position southeast of Gettysburg in order to assume the counteroffensive with the 3d Division from the vicinity of Hanover.

(3) *Administrative.*—(a) *Location of installations.*—The supply and evacuation system established for the I Corps in accordance with the approved plan (as given on Form A issued with this Section) has functioned normally. All installations, except those of the corps medical service, have been able to support from initial locations the tactical operations of the I Corps; one surgical hospital each has been allotted to the 1st and 2d Divisions and two evacuation hospitals and the medical depot have been advanced to Hanover.

(b) *Mobile reserves.*—Three 1000-ton trainloads of ammunition, all classes, in moblie reserve, are located on sidings in the area: Lemoyne—Carlisle (both inclusive).

(c) *Tentative plans.*—Colonel "G-4" had advised all members of the corps special staff of the tentative tactical plans for the use of units now in GHQ reserve and had directed that special staff plans to support each tentative tactical plan be prepared.

(d) *General plan of supply and evacuation.*—The approved plan of 9 March is still in effect.

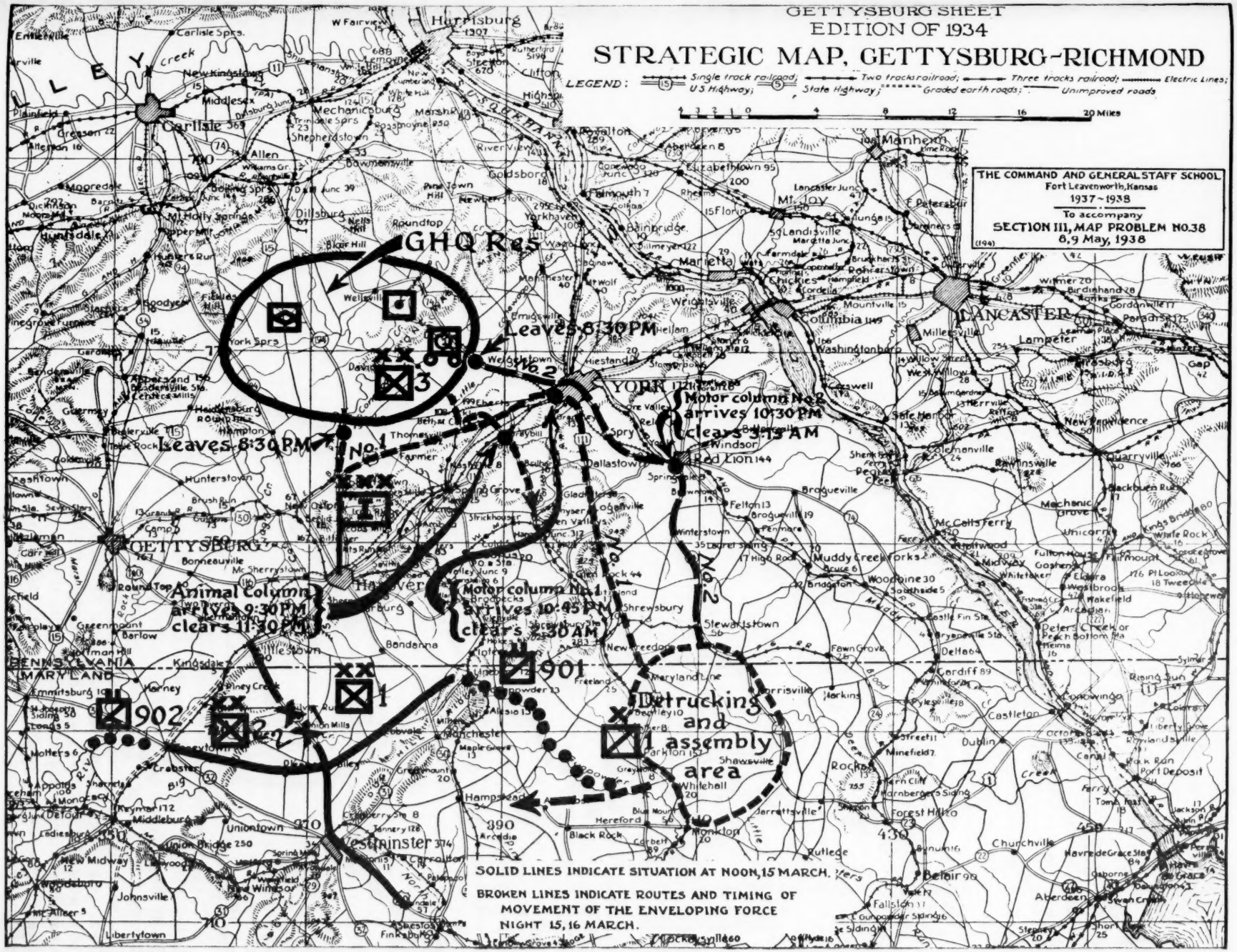
b. Events between noon, 15 March and 3:00 PM, 15 March.—(1) *Message from GHQ.*—At 1:30 PM, Lieutenant General A, at his command post at Hanover, received the following message from GHQ:

"The force opposed to the I Corps is estimated to be a corps of not more than two divisions. You will advance without delay and Capture BALTIMORE. The following units are attached to your corps at once: 3d Division, with attached cavalry; GHQ motor transport units sufficient to move the essential combat elements of one brigade; 901st, 902d, and 903d Field Artillery (75-mm gun, truck-drawn); 912th Field Artillery (155-mm howitzer, truck-drawn); 915th Infantry (light tanks); and 918th Infantry (medium tanks) (less 3d Battalion). All artillery regiments of the 3d Division are truck-drawn."

(2) *Decision and plan of the corps commander.*—At 2:45 PM, Lieutenant General A made the following announcement to his general staff which had been in conference at the corps command post at Hanover:

"The corps will attack early 16 March, enveloping the hostile right flank from the vicinity of Whitehall (407-723) and capture the high ground in the vicinity of Hampstead (385-723).

"The 1st Cavalry Brigade will continue its attack and seize the ridge west of Gunpowder Falls River as far south as Glencoe and prevent hostile ground reconnaissance to the northeast thereof. It will protect the movement of the 3d


GETTYSBURG SHEET
EDITION OF 1934
STRATEGIC MAP, GETTYSBURG-RICHMOND
LEGEND: Single track railroad; Two tracks railroad; Three tracks railroad; Electric Lines; U S Highway; State Highway; Graded earth roads; Unimproved roads
20 Miles
THE COMMAND AND GENERAL STAFF SCHOOL
Fort Leavenworth, Kansas
1937-1938
To accompany
SECTION III, MAP PROBLEM NO.38
8,9 May, 1938
GHQ Res
Leaves 8:30PM
No.2
Motor column No.2 arrives 10:30 PM clears 3:15 AM
Leaves 8:30 P.M.
No.1
Animal column arrives 9:30PM clears 11:30PM
Motor column No.1 arrives 10:45PM clears 2:30AM
No.3
No.4
No.5
901
902
970
990
Detrucking and assembly area
GETTYSBURG
YORK
LANCASTER
Carlisle
Harrisburg
SOLID LINES INDICATE SITUATION AT NOON, 15 MARCH.
BROKEN LINES INDICATE ROUTES AND TIMING OF MOVEMENT OF THE ENVELOPING FORCE NIGHT 15, 16 MARCH.

Division and will, on corps order, assist the attack of that division early tomorrow.

"The 3d Division will move under cover of darkness tonight by motor to the vicinity of Whitehall. It will attack early tomorrow morning on corps order and capture the high ground in the vicinity of Hampstead.

"The 1st and 2d Divisions will not resume the attack until daylight tomorrow. Details will be announced later.

"The 3d Division will be strongly favored in the matter of artillery and other support.

"The corps reserve will consist of the 1st Infantry, less one battalion, and will assemble at Littlestown by daylight, 16 March, prepared for movement by motor transport."

(3) *Action of Colonel "G-4."*—Immediately after receiving the decision of the corps commander for operations of 16 March, Colonel "G-4" went to his office, arriving there at 3:00 PM, 15 March. The Assistant G-4 of the corps was the only officer present in the office when G-4 arrived.

c. Miscellaneous.—(1) *Corps command post.*—At 3:00 PM, 15 March, both the forward and rear echelons of the corps command post are located in the same building in Hanover.

(2) *Weather.*—The mist which has been covering the combat area during the past few days is expected to disappear during the afternoon of 15 March.

8. THIRD REQUIREMENT.—Instructions and actions, if any, of Colonel "G-4" between 3:00 PM and 3:15 PM, 15 March.

NOTE

Students will assume that Colonel "G-4" is sufficiently familiar with the situation so that it is unnecessary for him to study his maps between 3:00 PM and 3:15 PM, 15 March.

SECTION IV

Situation Continued, and Fourth Requirement

Paragraph
Special situation, continued ---------- 9
Fourth requirement ---------- 10

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9. SPECIAL SITUATION, CONTINUED.—*a. Special staff conference.*—At 3:45 PM, 15 March, Colonel "G-4" returned to his office. All members of the special staff had not yet arrived for the conference which had been ordered by Colonel "G-4" about 3:05 PM; the corps ordnance officer and the corps quartermaster were among those present. Colonel "G-4" decided to go ahead with the conference at once and spoke to the partially assembled staff as follows:

"The corps attacks early tomorrow morning enveloping the hostile right (east) flank from the vicinity of Whitehall. The 3d Division, and GHQ artillery and tanks, have been attached to the I Corps. The 3d Division, using GHQ and corps motor transport, the 901st and 903d Field Artillery (75-mm gun, truck-drawn), the 912th Field Artillery (155-mm howitzer, truck-drawn), and the 3d Battalion 915th Infantry (light tanks) begin movement from their present bivouac areas at dark tonight. The routing and timing of movement of the enveloping force will be as indicated on Special Map. The movement of the enveloping force has first priority on the indicated roads. The corps quartermaster service will provide sufficient trucks to move troops and combat equipment (less rolling kitchens) of one infantry brigade. The GHQ artillery has no combat trains. Complete your plans for tonight's operations as soon as possible.

"Colonel 'Quartermaster' make arrangements for the indicated motor transport movement direct with the 3d Division."

b. Plan of the corps ordnance officer.—The corps ordnance officer, after consulting the corps quartermaster and the corps artillery S-4, reported to Colonel "G-4" about 4:30 PM. Following are extracts of the conversation between Colonel "G-4" and the corps ordnance officer:

Ordnance officer: "It is desirable to establish another ammunition depot to support the forces in our main attack. However, there are a number of difficulties involved. We must make available to the enveloping force by tomorrow night 1800 tons of ammunition; an additional 1200 tons must be stocked in Ammunition Depot No. 1 at Bittinger. The maximum amount of transportation that the corps quartermaster can provide tonight for ordnance service is 500 truck-tons.

"The only sidings in the service area favoring the enveloping attack suitable for extensive ammunition unloading operations, rail to truck, are:

Wrightsville: 40 cars
Red Lion: 75 cars
York: 160 cars

"A depot site (for Depot No. 2) south and southeast of Red Lion has been tentatively selected and roughly laid out. Stocking of this depot cannot begin before 3:15 AM without interfering with the movement of combat troops.

"The weather forecast is: mist clearing this afternoon, clear and warmer tomorrow.

"There are several possible arrangements which I submit for your consideration:

"Plan 1: Use all transport available to me tonight at Depot No. 1; stock all reserves in this depot, and have all units of the corps draw from it. This will mean attempting to stock 3000 tons of ammunition in one depot in one night, in addition to furnishing replenishments for the expenditures of today's combat. Congestion and confusion can be expected, stocking operations will extend into daylight hours tomorrow, and units of the enveloping force will be required to make a rather long haul to obtain ammunition. However, operations under this plan can proceed continuously throughout the night without interference with movements of combat units.

"Plan 2: Use all transport available to me tonight at Depot No. 1 and stock it with its normal requirements; this can be done. Advance, tonight, ammunition railroad trains loaded with stocks for Depot No. 2 from their present locations and spot cars, according to class of ammunition, on sidings at Wrightsville, York, and Red Lion; cars will be dispersed on sidings to limit danger from air attack and to facilitate issue. Issue during daylight tomorrow direct from cars to combat and service trains; demands should be intermittent as to time and not large as to quantity. Stock an organized depot tomorrow night. However, we cannot

heavily stock a depot and issue from it at the same time. I would stock the depot first and could complete this work by midnight. Remaining demands for replenishments of the day's expenditures, that is, those requirements not drawn during the day, would be filled after midnight. This can be done but some units may not get unit reserves completely refilled until just about daylight.

"Plan 3: Use all transport available to me tonight at Depot No. 1 and stock it with normal requirements. Spot trains of ammunition for Depot No. 2 in Red Lion, at which there is one useable siding of 75 cars; 60 carloads of ammunition are required for stockage of Depot No. 2. As soon as transport can be released from the movement of the 3d Division send it to Red Lion and begin stocking Depot No. 2. According to the timing indicated by Overlay No. 2 this transport will begin to arrive at Red Lion shortly before daylight. We can take a chance that hostile aviation will not detect our operations in this new area. This plan will permit me to establish a well organized depot by tomorrow night and to be well prepared at dark to take care of any demands."

Colonel "G-4": "Have you been able to reestablish on trucks the corps reserve of 900 tons of ammunition?"

Ordnance Officer: "As you know, the corps reserve was dumped in Depot No. 1 in order to release transportation. The quartermaster has been unable to reallocate sufficient transportation to reestablish this rolling reserve."

Colonel "G-4" then considered for a few minutes the three plans of the corps ordnance officer. Finally he asked of the ordnance officer:

"Which plan do you recommend?"

Ordnance Officer: "I recommend Plan 3."

10. FOURTH REQUIREMENT.—Action, and instructions, if any, of Colonel "G-4" on the recommendation of the corps ordnance officer.

SECTION V

Situation Continued, and Fifth Requirement

	Paragraph
Special situation, continued	11
Fifth requirement	12

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11. SPECIAL SITUATION, CONTINUED.—*a. Tactical situation at 10:00 AM, 16 March.*—The I Corps, reinforced, had attacked early 16 March in accordance with original plans [see paragraph 7 *b* (2), Section III]. At 10:00 AM, the attack was progressing favorably and gave promise of considerable success.

b. Administrative situation at 10:00 AM, 16 March.—(1) *Railheads.*—All railheads were located south of the line: York—Hanover—Gettysburg (all inclusive).

(2) *Depots.*—All corps depots were still operating in initial locations and no change was contemplated for the night 16-17 March, except that Ammunition Depot No. 2 would be established south and southeast of Red Lion. Expenditures had been normal.

(3) *Class I supplies.*—Railhead reserves of 1 d/s had been established.

(4) *Class II, III, and IV supplies.*—(a) *Class II, III, and IV (less ammunition).*—1300 tons have been ordered for the night 16-17 March for replenishment of depot stockages.

(b) *Ammunition.*—(i) Sufficient ammunition to replace probable expenditures of 16 March, is in Ammunition Depot No. 1 or on cars in Wrightsville, York, and Red Lion.

(ii) 1800 tons (one day of operations, second day attack of a position) are on cars at Lemoyne; an additional 1800 tons will be brought west of the river tonight.

(5) *Medical service.*—(a) Surgical hospitals have been allotted to all divisions.

(b) Evacuation hospitals for men are in York and Hanover.

(6) *Transportation.*—(a) *Ammunition transport (all echelons).*—Average loss since beginning of operations is about 15%; no replacements have been received.

(b) *Corps quartermaster transport.* — Operating strength is 20% below normal; no replacements have been received. Drivers are very tired and the accident rate is increasing. Ninety (90) 2½-ton trucks from the corps quartermaster service are assembled at Littlestown ready to move the corps reserve.

(c) *GHQ transport.*—This had been recalled east of the Susquehanna River upon completion of the movement of the 3d Division; GHQ had informed Lieutenant General A that it could furnish no motor transport before 20 March.

c. Message to Colonel "G-4" from the corps chief of staff.—At 11:00 AM, Colonel "G-4," while at the forward echelon of the corps command post, received the following message from the corps chief of staff:

"The Reds have bombed our lines of communication. The bridges over the SUSQUEHANNA at COLUMBIA and SHOCK'S MILLS, the railroad bridge (383-798) on the main line of the NC RR near the mouth of BREECHES CREEK, and the railroad bridge over ROCK CREEK just east of GETTYSBURG have been seriously damaged. The engineers' estimate is that rail traffic over these bridges cannot be resumed in less than 36 hours.

"One railroad bridge and one vehicular bridge at HARRISBURG are intact and corps antiaircraft units have been ordered to reinforce the GHQ units at these bridges in an effort to keep this line of communication open.

"The corps commander is concerned over the supply and evacuation prospects as he desires to push the attack to the utmost. Report to me as soon as possible, prepared to submit conclusions and recommendations to the corps commander."

Colonel "G-4" and the Chief of Staff conferred with Lieutenant General A at 11:30 AM, 16 March.

12. FIFTH REQUIREMENT. — Conclusions and recommendations submitted about 11:30 AM, 16 March, by Colonel "G-4" to the corps commander.

NOTE

Be brief and definite. The report of Colonel "G-4" to the corps commander may be given in conversational language.

SECTION VI

A Solution

Paragraph
A solution ---------- 13

13. A SOLUTION.—*a. First requirement.*—See paragraph 4 *a*, SECTION II.

b. Second requirement.—See completed Form A issued with Section III.

c. Third requirement.—Colonel "G-4":

(1) Informed the Assistant G-4 of the decision and plan of the corps commander.

(2) Directed the Assistant G-4 to assemble as soon as possible at the G-4 office all members of the corps special staff for conference; and to inform them of the proposed tactical plan.

(3) Returned to the G-3 office to secure information on the composition, routes, and timing of movement of the enveloping force.

d. Fourth requirement.—Colonel "G-4":

(1) Disapproved the recommendation of the corps ordnance officer as Plan 3 violated the specific instructions of the corps commander regarding concentration of ammunition and activities incident to daylight storage and issue (see paragraph 4 *b*, SECTION II).

(2) Directed that Plan 2 be used.

e. Fifth requirement.—Colonel "G-4" spoke to Lieutenant General A as follows:

"The supply system will be able to continue to provide essential combat supplies required for a continuation of the attack. Sufficient battle reserves are already in the area west of the Susquehanna for a continuation of the attack today and tomorrow.

"The hostile bombing has thrown us back upon our alternative line of communication increasing our supply haul for the main attack force by about 35 to 40 miles.

"I recommend the following:

"Line of communication, rail: Harrisburg—Carlisle—Gettysburg with unloading (or loading) points in two (2) general areas; the Lemoyne—Carlisle area and the Gettysburg area.

"Release of corps motor transport from assignment to troop movement missions by 4:00 PM today.

"First priority to be given to supply of ammunition.

"Cancel daily trains tonight—use railhead reserves of Class I supplies.

"Request communication zone to provide motor service for transportation of casualties from evacuation hospitals to rail evacuation points.

"Daylight supply operations to be authorized with dispersion of rolling stock on sidings and truck movements in small groups.

"No change in location of installations."

SECTION VII

Discussion

Paragraph
Purpose ---------- 14
First requirement ---------- 15
Second requirement ---------- 16
Third requirement ---------- 17
Fourth requirement ---------- 18
Fifth requirement ---------- 19

14. PURPOSE.—The purpose of this problem is to illustrate some of the activities of a corps G-4 in successive phases of the operations of a reinforced corps engaged in an offensive mission. More specifically, it illustrates:

a. The preparation of a general plan of supply and evacuation by G-4 for the commander.

b. G-4 coordination and supervision of the activities of special staff officers.

c. G-4 coordination with other general staff officers.

d. G-4 advisory functions when hostile operations seriously affect the established system of supply and evacuation.

15. FIRST REQUIREMENT.—Principally this requirement illustrates the preparation of a general plan of supply and evacuation; incidentally it indicates some of those matters upon which G-4 acts as advisor to the corps commander.

a. Basic considerations.—(1) *The general situation.*—A *general supply and evacuation plan* must perforce be based upon the *general tactical situation* existing at the time when the commander calls for that plan. G-4 was called upon for a plan during the evening of 9 March, or, just about the middle of the corps concentration. The tactical situation was most indefinite; the tentative tactical plan prescribes a march toward an enemy unknown as to strength and location. The Commanding General I Corps, reinforced, hoped to engage in successful offensive operations and to advance into hostile territory. However, there was no certainty as to where, when, or in what strength the enemy would be met. The two extreme possibilities could have been: an unopposed march well into the enemy territory; or, an attack by the enemy in strength superior to that of the I Corps, reinforced, generally along the international boundary. The supply and evacuation plan prepared by G-4 must be able to support tactical operations within the extremes just mentioned. If the tactical plan is indefinite in its objective, and broad in its possibilities, then likewise the supply and evacuation plan must be broad as to conception and flexible in its application.

(2) *Contents of the report of G-4.*—The conclusions and recommendations of G-4 with respect to supply and evacuation should include only those matters which:

(a) Are so vital to the support of the tactical plan that they require the definite approval of the commander;

(b) Are so important that they should be called to the attention of the commander.

Details of what may be called "service plans" should not be included. For instance: G-4 should recommend a *general area* for the location of corps service installations—the definite location of a particular installation within that area normally is a detail of a service plan in which the commander is not vitally interested.

When approved the G-4 general plan of supply and evacuation becomes the commander's directive.

b. The general plan of supply and evacuation in this situation.—In this situation under the conditions existing at 9:00 PM, 9 March, G-4's plan should include, as a minimum, recommendations on the following supply and evacuation factors:

Lines of communication
Stockages of supplies
General areas for the location of installations and mobile reserves
Restrictions on movements of supplies
Protection provided for lines of communication.

(1) *Lines of communication.*—(a) *Rail.*—The rail net certainly is adequate and is divided generally into two systems approximately paralleling the front; connecting lines join the systems. G-4 must decide which system to use as the primary line of communication, the forward system through York and Hanover, or the rear one through Lemoyne and Carlisle. He decided upon the former because it will give closer initial support to probable tactical operations, it will be able to continue to furnish support for a considerable advance of the corps, and at least part of it will be safe if the corps is attacked at the border. What if the enemy attacked toward York between the direction of advance of the I Corps and the Susquehanna River? The distance by the most direct route from the border to York is about 17 miles and by other routes the distance is considerably greater. It is not believed that a hostile force can quickly imperil the lines through York with the bulk of the I Corps on the flank of such an operation.

(b) *Alternative rail line of communication.*—The interruption of the forward line of communication by mechanized or air attack is a possibility and furthermore the I Corps even may be forced to withdraw northward. The rail facilities of the Lemoyne—Carlisle system are available, and are suitable for an alternative line of communication; the possible use of this system is definitely part of the supply and evacuation plan.

There are several ways of designating the two lateral rail nets which have been called "systems" in this discussion; the essential point is that forward and rearward rail facilities exist with the forward being selected as that one to be used initially for the bulk of rail traffic.

(c) *Roads.*—This combat area is particularly favored with an excellent net of all-weather highways. Wet weather may slow up and inconvenience supply and evacuation operations in the forward areas (retail distribution), but the corps responsibility of providing supplies in bulk (wholesale distribution) should not be seriously affected.

(d) *Extension of lines of communication.*—In offensive operations the possibility of the forward extension of lines of communication is a factor which may influence future action. In this situation railroads and roads entering hostile territory are numerous and run generally in a north-south direction. In other words, the basic communication facilities, though subject to hostile damage, are adequate and actually favor an advance to the south.

(2) *Stockages of battle reserves.*—(a) *Time of movement into the combat area and classes to be moved.*—The troop movement load on the rail transportation system during the concentration was the determining logistical factor in the time of movement of battle reserves west of the Susquehanna River. The first night available for large supply movements was the night of 12-13 March. A reserve of supplies west of the river should be established as soon as practicable inasmuch as the river is unquestionably a serious defile. Whether or not D-day is 12 March, the night of 12-13 March should be chosen as the time to begin hauling reserve supplies into the combat area.

In view of the fact that a large river is astride the corps lines of communication and practically all supplies required by the corps must be shipped into the combat area, it is desirable to establish reserves of all classes of supplies.

(b) *Amounts.*—The possible cumulative time-interruption of the lines of communication is 48 hours, or 2 days; 24 hours west of the river, 24 hours across the river. Consequently a *minimum* battle reserve of 2 days of operation of the most severe type in which the corps may engage, that is, attack of a position, should be brought west of the river—for *all units west of the river,* since the I Corps is responsible for the supply of GHQ units. A desirable stockage is 3 days of operations, attack, and this amount could be stated in a general plan as the amount to be accumulated over several days. However, the tonnage involved in the estimate is very large and the work of handling for storage would tax service capabilities if an attempt were made to bring it all into the area in one night. It is to be remembered that only 4 trains were available for mobile reserves.

(i) *Class I.*—In an advance in which it is expected that an uninterrupted march of several days will be made, railhead reserves of Class I supplies are not established. However in this situation such a march is extremely improbable and most railheads will probably remain in initial locations for from one to several days. In case of an interruption of lines of communication G-4 wishes to have the corps area at least partially stocked with reserve Class I supplies; in a combat emergency this class of supply would receive a low order of priority for shipment into and distribution within the area.

(ii) *Class II, III, and IV (less ammunition).*—A stockage of 5 days of supply permits assumed replenishment for 1 day of advance and at least 2 days of offensive operations. Strict compliance with a 2 days of attack of a position prescription would have called for 4 days of supply— a satisfactory recommendation. However, these classes of supplies differ in nature from ammunition and gasoline and oil, especially as to variety, ease of handling, and tonnage. From the viewpoint of practical supply operations the larger the unit shipment the better. It is for this reason that an initial shipment of 5 days of supply was called for. The minimum level was given as 2 days of operations, attack of a position—a safe reserve in conformity with minimum requirements.

(iii) *Ammunition.*—G-4 must be more specific in his recommendations on this essential item of supply. Ammunition should be disposed for combat *in accordance with the tactical distribution of combat troops.* To state this principle more definitely: some ammunition should be located in as close support as practicable to combat units engaged or about to become engaged; additional ammunition should be held in mobile reserve if the situation is indefinite

and a large reserve of combat troops is held out. That is the condition found in this situation. What amounts to a large reserve, even though it be under GHQ control, has been constituted and located in a central position. The 3d Division and GHQ artillery and tanks may be used on the right or left flank or in the center. Consequently a large proportion of the battle reserve of ammunition was also held in a central position ready to "follow the troops." Part of the reserve for the I Corps proper was held in reserve as the situation on the front of the 1st and 2d Divisions is uncertain and it is not desirable to immobilize an excessive amount of ammunition in open warfare. One organized depot moderately stocked is sufficient for the initial support of the I Corps.

(3) *General location of bulk of installations.*—The previous discussion of the lines of communication generally fixes the installation area between York and Gettysburg. Special staff reconnaissance will determine specific locations. G-4 might have limited installations other than railheads and the signal depot to an area north of an east-west line through New Oxford. However, since he was unfamiliar with existing facilities he preferred to await the recommendations of the special staff and then, if necessary, he could make adjustments in accordance with actual conditions.

(4) *General location of mobile reserves.*—The obvious desirable location of mobile reserves, in view of the previous remarks on ammunition, is somewhere in the Lemoyne—Carlisle area. The rail and road net from this area favor movement in any forward direction.

(5) *Credits.*—It is believed that in many instances the matter of credits, which is of vital importance to a commander, will be arranged for by him personally with GHQ. In this situation G-4 has at least made his plan complete by translating the credits, as given, into days of operations; the commander is interested in days of fighting, not arbitrary units of quantity.

(6) *Evacuation.*—There is nothing in the situation to indicate other than normal procedure.

(7) *Priority of supplies.*—Something *may* happen to upset G-4's well laid plan. In this situation this it not an essential item of the general plan of supply and evacuation; in other situations it might be. Since this plan, when approved, becomes a directive for the special staff, any desired priority is a beneficial guide to them.

(8) *Traffic.*—The solution given is practically self-explanatory and the reasons obvious; secrecy in preparatory operations and protection when combat begins are the objectives. G-4 should inform the commander at this time that after combat begins daylight movements *may* be necessary. It may make unnecessary the obtaining of a decision later on during the stress of combat.

(9) *Protection.*—The commander is certainly interested in the matter of protection of his lines of communications. G-4 should inform him if normal protection is adequate or obtain from him approval of any special arrangements that may be required, such as reinforcement by detail of combat troops.

16. SECOND REQUIREMENT.—*a General remarks.*—This requirement illustrates the supervisory and coordinating function of G-4 in matters pertaining to operations of the corps special staff. In this situation G-4 started the special staff working toward a common objective by a directive which consisted of the approved general plan of supply and evacuation, special comments of the corps commander, and very limited special instructions of his own.

b. Changes in staff recommendations.—(1) It is to be expected that in the case of a special staff generally well trained and given opportunity for complete coordination with each other there should arise but few instances in which G-4 is required to change recommendations. Occasionally, as in this situation, where complete coordination was not possible and where it has been purposely assumed that a few recommendations violate approved doctrine or definite instructions, G-4 must be qualified to detect errors of judgment or misunderstanding and take corrective action.

(2) Perhaps the more important function of G-4 is to determine priorities and to allocate available facilities in those cases in which perfectly sound special staff recommendations result in total demands in excess of available means. This is the situation which arose due to the recommendations of the ordnance officer and the surgeon on train requirements for mobile reserves. The decision of G-4 was based on the approved supply priority and as a result the surgeon could not be given all his desired facilities. Changing this request did not cripple the evacuation service; it merely made future movement of hospitals less convenient, with resort to truck transportation or train movement on call.

(3) It is believed that the priorities of location approved by G-4 and the changes in recommendations directed by him are sufficiently obvious as not to warrant complete individual discussion. A few questionable items will be discussed:

(a) *101st Ordnance Company (Hv Maint) and the Ordnance Depot.*—Hanover is too advanced in case of a Red attack at the border. G-4 knows actually by questioning the special staff (but given in the problem by note) that numerous storage (shed) facilities exist in York; also York is a satisfactory location for the heavy ordnance company; therefore he can immediately select priority (2) for each of these items.

(b) *Engineer depot.*—The location recommended for this is in conflict with the location recommended for Ammunition Depot No. 1. The Engineer Depot was given priority (2) not because it is endangered by the ammunition depot but because of the excessively large combined tonnage that would have to be handled at one unloading point. Normally ammunition depots are given priority in location over other depots.

(c) *Truck and labor requirements.*—This subrequirement was designed to test the student as to his general knowledge of truck and labor means within the reinforced corps. G-4 certainly should have a working knowledge of the service units. Requirements are well within means so it is unnecessary for G-4 to take any action, other than to approve recommendations.

In some instances it is to be noted that no trucks were required to stock depots; this is not unusual as supplies are often stored in freight sheds or warehouses with movement

direct from car to place of storage by hand or hand-truck. This is but common practice.

Where no quartermaster labor has been requested the interested service will provide it.

17. THIRD REQUIREMENT.—This requirement illustrates the interrelationship of sections of the corps general staff, and staff procedure within the G-4 section. It troop leads G-4 in that brief but important period immediately following a major tactical decision. The decision having been announced G-4 must consider these questions: "How does it affect the supply and evacuation situation?" "What must be done, if anything, to start interested special services functioning?"

It was quickly apparent to G-4 that the tactical plan called for a large movement directly across the corps lines of communication; that arterial roads would be used or blocked by combat units on the move; that *all* special services would be interested if not directly affected. Therefore it is believed that the two essential things G-4 must do or have done are:

a. Call a special staff conference at once.

b. Obtain from the G-3 section information on the composition, routing, and timing of movement of the enveloping force.

It is considered a proper solution if G-4 sends his assistant to the G-3 office and calls the special staff conference himself.

The question naturally arises "How long will it take to get desired information from the G-3 section?" It must be recalled that G-3 had informed G-4 he had made tentative plans for the enveloping operation on the east flank. These tentative plans should have included assignments of artillery and tanks, routes, composition of columns, and time-lengths. Furthermore G-3 planning time must be reduced to a minimum—it is 3:00 PM and orders must soon go to the combat units. It is therefore believed that G-4 would not keep his special staff waiting very long. Also it cannot be assumed that members of the special staff can be assembled at any time at a moment's notice.

18. FOURTH REQUIREMENT.—This requirement illustrates G-4 supervision of special staff planning. The ordnance officer is confronted with a situation in which he feels that he cannot make a definite recommendation without calling G-4's attention to the difficulties involved; and so the ordnance officer submits, with comments, several plans. The several plans will be discussed first from an ordnance service viewpoint and then from a G-4 viewpoint.

Plan 1:

Ordnance service.—This plan provides concentrated, continuous effort but the congestion would probably lead to extreme confusion and poor service.

G-4.—This plan gives an excessive concentration of ammunition and places an undesirable load upon combat unit ammunition services; would probably result in extensive daylight activity.

Plan 2:

Ordnance service.—This plan will provide adequate service throughout daylight of 16 March but will place a heavy load on facilities and personnel during the night of 16-17 March. Combat and service train movements into the depot must be held up until midnight; unit commanders must understand and accept possible delay in getting all unit reserves refilled before daylight.

G-4.—Depot No. 1 will be available in an emergency. This plan should function though it places a heavy burden on ordnance service during the night of 16-17 March. Combat units will be able to obtain sufficient ammunition to initiate combat on the 17th and continue that combat for a considerable period. Most important it complies with the directive of the corps commander to limit concentration of ammunition and restrict large ammunition operations to hours of darkness as much as possible.

Plan 3:

Ordnance service.—From a technical and logistical point of view this plan is most satisfactory as it will distribute stocking operations over an entire day. However spotting 60 cars on a 75-car siding is a dangerous concentration. Yet this is a new area and there is a good chance that the enemy air service will not observe operations.

G-4.—The chance that operations will be unobserved is too risky. This plan disregards the corps commander's directive; daylight operations are not yet mandatory.

19. FIFTH REQUIREMENT.—This requirement illustrates the functions of G-4 as advisor to the commander. It also provides a situation which tests the soundness of G-4's basic general plan of supply and evacuation.

a. The situation.—A possible, even expected, interruption of the main line of communication of the corps has occurred. Naturally the commander is concerned since he visualizes a complete victory. He calls upon his G-4 for an estimate of the situation and recomdendations. *G-4 cannot wait for a conference with his special staff nor can he make a detailed analysis himself.* He must roughly analyze the situation and generally compare new demands with available means.

b. Brief analysis made by G-4:

(1) *Line of communication.*—Our alternative line of communication is open and there will be available two (2) general loading and unloading areas.

(2) *Battle reserves.*—There are sufficient battle reserves of all classes of supplies west of the river to continue the attack for at least 2 days. However some of this reserve, 1 day of operations of ammunition, is on railroad cars at a considerable distance from the forward area. Part of the 1800 tons of ammunition, that for Ammunition Depot No. 2 must be hauled a distance of about 35 to 40 miles. The forward movement of ammunition should have first priority.

(3) *Transportation.*—(a) All available corps transport will be required for hauling supplies from rail points to depots, and for other corps service requirements such as engineer maintenance; unit transportation must handle the job of distribution forward of the depots.

(b) Because of the reduced operating capacity of our transport, both as to tonnage and personnel efficiency, no part of it should be made available tonight for movement of troops. If movement of troops by motors is absolutely necessary consideration must be given to forming a pool of divisional transport.

(4) *Daily trains.*—We do not need Class I supplies tonight; we can issue railhead reserves. Eliminating their shipment will simplify rail and corps service operations.

(5) *Evacuation.*—Evacuation cannot be accomplished by rail movements direct from evacuation hospitals. The communications zone is responsible for movement of patients from these hospitals; it may be able to provide motor service. If not, the corps surgeon must resort to expedients to be worked out later.

(6) *Daylight supply movements.*—The situation now is such that our supply services must operate during daylight.

(7) *Location of establishments.*—Present locations are satisfactory.

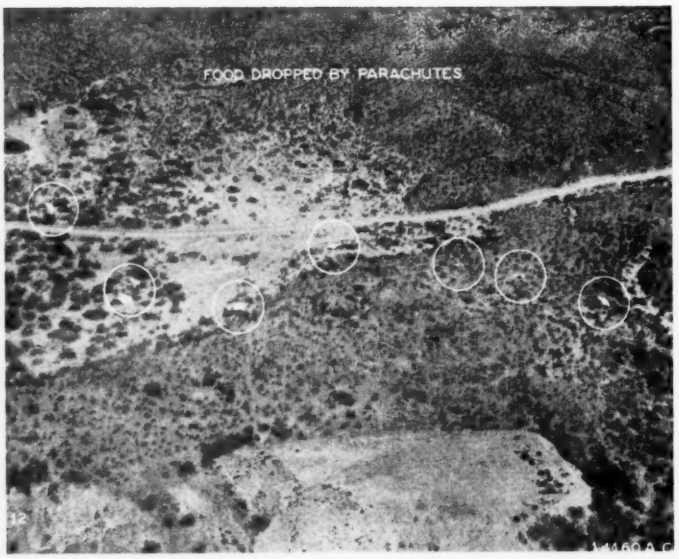
c. G-4's report to the corps commander:

(1) *Conclusion.*—This is an important, probably the most important, part of G-4's report—in this case it relieves the commander of any anxiety on the question of supply, and in that he is most interested. G-4's analysis indicated that this favorable conclusion could be made.

(2) *Recommendations.*—The recommendations given in the solution are all matters of interest to the commander. As a minimum, those items requiring definite approval by the corps commander should be brought to his attention. These are:

(a) Release of corps motor transport from troop movement missions.

(b) Release of restrictions on daylight movements.



U. S. Army Air Corps.

A Trail of Commissary Bombs

Directory of Periodicals

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Catalog of Selected Periodical Articles

This section catalogs the articles selected from Library periodicals for the current quarter. Periodicals in this Catalog are arranged alphabetically.

ARMY ORDNANCE

September-October 1938

A SCHOOL OF SUPPLY STRATEGY. THE AIMS AND METHODS OF THE ARMY INDUSTRIAL COLLEGE. Colonel Jordan

THE FIGHTING AIRPLANE. WILL MULTIPLACE SHIPS CHALLENGE THE "FLYING FORTRESS"? Horace J. Alter, Aeronautical engineer

STRATEGIC AND CRITICAL MATERIALS. THEIR RELATION TO OUR NATIONAL SECURITY. (II) Lieut.Colonel Rogers

November-December 1938

THE SPANISH WAR. A FAR GREATER CONFLICT THAN OUTWARDLY APPEARS. Major General Fuller

STRATEGIC AND CRITICAL MATERIALS. THEIR RELATION TO OUR NATIONAL SECURITY. (III) Lieut.Colonel Rogers

TRAINING ORDNANCE RESERVES. A PLAN FOR OFFICERS OF THE ARM AND SERVICE ASSIGNMENT GROUP. Captain Reed

ARMY QUARTERLY (Great Britain)

October 1938

THE OTHER SIDE OF THE HILL. NO. XVII. NEUVE CHAPELLE: 10TH-12TH OF MARCH, 1915

LOST ARMIES. IV. STRATEGICAL ERRORS. Colonel Sir Harold Percival

AIR-POWER AND TROOP MOVEMENT. Major T.R. Phillips, U.S. Army

MECHANIZATION. Lieut.Colonel Pinder

LESSONS FROM THE SHANGHAI OPERATIONS OF 1937. Captain Davidson-Houston

BULLETIN BELGE DES SCIENCES MILITAIRES (Belgium)

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

April 1938

THE DEFENSE OF DIXMUDE, 17 OCTOBER TO 10 NOVEMBER 1914. [Pages d'histoire de l'Armée belge au cours de la guerre 1914-1918.—Dixmude, 17 octobre-10 novembre 1914.] (IV) Major Wanty

This instalment covers the events from 25 October to 6 November 1914. Many encounters took place during this period, prisoners were taken and lost and the troops suffered for lack of supplies. Large credit for the defense of Dixmude must be given to Admiral Ronarch and his marines; in general, however, both Belgian and French troops fought gallantly in these operations.

ENEMY INTELLIGENCE AND BLIND OBEDIENCE. [Renseignements sur l'ennemi et Obéissance passive.] (I) Captain Jacques

Military obedience, that is to say, the execution of the will of the leader, is not carried out in the same way in all the ranks of the hierarchy. There are some who upon receipt of an order, must translate it into action, movements or commands; others are only concerned with its dissemination, while still others must translate it into new orders assigning executive duties to those who must carry out the contemplated operations. The latter category has greatly increased in numbers. While formerly corps commanders, brigade commanders and even division commanders personally commanded their units fighting in close formations, in modern combat today not even the company commander can personally supervise all his men. Once the orders are issued, his role will be more to control than to lead.

Three factors come into play in the transmission of an order:

(1) The will, or better still, the "plan" of the commander who gives the order.

(2) The personal part, or the "initiative" of the person who transmits it.

(3) The doctrine, which is the link between the plan and the initiative.

In practice, the last two factors are merged into one, because initiative can only be exercised within the scope of the doctrine.

Orders come from superiors and, for example, in case of the employment of a unit, are transmitted in succession until it is translated into action by the last subordinates. Intelligence, on the other hand, follows a reverse channel. It may have been received from enemy soil before hostilities started or before contact had been gained by means of the aviation, cavalry or advance guards; intelligence comes from the subordinate to the superior.

Napoleon said: "A general who, because of superior orders fights a battle with the certainty that he is going to lose it, is a criminal." Marshal Foch adapts Napoleon's theories to modern ideas: "Being disciplined does not

mean that one does not commit breaches of discipline; it does not mean that one executes orders only to the extent which he considers convenient, rational or possible; it is necessary to read the thought of the commander who has given the order and to exercise all possible means to carry out his intentions."

Captain Jacques cites many historical illustrations. Bernadotte at Auerstadt and again at Eylau failed to carry out the maneuver ordered by Napoleon and some historians attribute his insubordination to many causes; the slowness and lack of subtleness of Grouchy and Ney on the 16th and 18th of June 1815 may have been due to the weight of years or perhaps because they could not see a prospective victory. Nivelle's offensive failed because, among other things, he did not have the confidence of his subordiates; he was not obeyed in full and, unfortunately, his plan of operations fell into the enemy's hands; he could not succeed in spite of the heroic efforts made by the troops.

There are innumerable cases where commanders of units, particularly large units, have acted contrary to instructions or even orders received. Those who have succeeded have been praised for their "initiative," while those who have failed have been punished for their disobedience. For this reason initiative has been defined as a "disobedience which turned out happily."

The best examples of disregard of orders from superiors and of acting on initiative, are probably provided by the Prussian corps commanders of 1870, as illustrated in many concrete cases in that war.

BALLOON BARRAGES.
[Les Ballons de protection.] By A. Aé.

This form of antiaircraft protection has been revived recently in several countries. Various types of balloons are discussed. The balloon is mainly to be used for night defense. Certain countries contemplate the use of three barrages at low, medium and high altitudes. The tactical disposition of the balloons depends upon the geographical shape of the objective to be defended, its military importance and its size.

May 1938

THE IV GROUP, 12TH ARTILLERY, IN THE OFFENSIVE IN FLANDERS.
[Pages d'histoire de l'Armée Belge au cours de la guerre 1914-1918: Le IV/12 A. dans l'offensive des Flandres.] Lieut.General Semet

An account of the experiences of the IV Artillery Group of the 12th Regiment from 21 August to 11 November 1918, during the final operations of the Belgian army in the World War.

THE DEFENSE OF DIXMUDE, 17 OCTOBER TO 10 NOVEMBER 1914.
[Pages d'histoire de l'Armée Belge au cours de la guerre 1914-1918: Dixmude, 17 octobre-10 novembre 1914.] (Conclusion) Major Wanty

Dixmude was finally captured by the Germans on 10 November 1914. However, the brave stand at the bridgehead gave the main Belgian forces time to organize their position and also covered the junction point with Foch's Northern Group.

ENEMY INTELLIGENCE AND BLIND OBEDIENCE. OPERATIONS OF THE FRENCH IV ARMY CORPS IN THE BELGIAN LUXEMBURG.]
[Renseignements sur l'ennemi et Obéissance passive.] (II) Captain Jacques

A study of the combats fought by the French Third and Fourth Armies, respectively, against the German Fifth and Fourth Armies on 22 August 1914, immediately raises the following question: what preliminary information had been received by the French concerning the movements of the German armies? Marshal Joffre writes in his Memoirs that the German plan of 1906 was known by the French General Staff. It consisted of a defensive front in Lorraine, with a pivoting wing advancing through Belgium.

The new German mobilization plan adopted on 1 April 1914 soon became known to the Second Section of the French General Staff. This plan prescribed that each active German Army Corps would have a Reserve Corps and that these reserve troops would be employed from the very beginning on the same tasks as the regular army troops.

The above information caused considerable discussion among the Third Section of the French General Staff. Finally, the commander in chief, upon the advice of General Castelnau, chief of the Third Section, concluded:

(1) That the Germans would not utilize the Reserve Corps in the front line.
(2) That the German right wing would not extend beyond the Meuse.*

Up to 18 August, air reconnaissance had not reported any enemy movements in the Belgian Luxemburg. On that day it reported German troops crossing the French-Luxemburg frontier, advancing to the west. On the 20th, Fourth Army headquarters and GHQ were informed that heavy columns of all arms were moving to the west and northwest in the region: Neufchateau — Bastogne — Houffalize. Fog prevented reconnaissance on the 21st.

Since 6 August, the French Army Cavalry had contacted the enemy cavalry at Luxemburg. On the 20th, the French cavalry engaged in combat and was able to identify several German divisions, two of which were reserve divisions. This information was immediately transmitted to Headquarters Fourth Army, corroborating the information already given by the air corps. The cavalry could not penetrate the enemy screen on the 21st and for this reason the direction of advance of the German armies on the 22d was a matter of conjecture. As a result, the French infantry divisions advanced into a mass of German forces and suffered severe losses in the combats at Ethe and Virton.

Paragraph 3 of the order of the 8th Division, issued on 22 August 1914, states: "Mission: To attack the enemy vigorously wherever found." These were the orders received by the subordinates before the battle; that was the result of fifteen days that had been available to determine the force, direction of advance and intentions of the German armies.

The information received was very little and in error, while the doctrine was a copy of the conquerors of Sedan: "To attack the enemy wherever found."

*During the World War, the Second (intelligence) and Third (operations) Sections were frequently in disagreement.

WATERWAYS AND THE DEFENSE OF BELGIUM IN HISTORY.
[L'Eau et la défense de la Belgique au cours de son histoire.] Colonel Verhaegen

Belgium by her geographical location has been predestined to be the battlefield of Western Europe. She has natural corridors of invasion and no natural frontiers; however, she possesses a valuable system of rivers and canals.

Numerous historical illustrations are given showing how effectively waterways have aided in the defense of the country. During the World War, for example, the Yser region was flooded in October 1914 and the dikes saved Nieuport, Dunkerque and Calais. The German armies could not cross the impassible barrier between Dixmude and the sea and the small Belgian army was thus able to reorganize and refit.

The author believes that flooded areas are the most efficient means of stopping an attack by mechanized forces.

June 1938

THE BEGINNING OF THE BELGIAN AIR FORCE.
[Pages d'Histoire de l'Armée belge au cours de la guerre 1914-1918. — Les debuts de l'Aviation militaire belge.] (I) Major General Mathieu

An account of the development of the Belgian air force. At the beginning of the World War, Belgium had two squadrons ready and two nearing completion, with a personnel of 37 pilots and observers.

ENEMY INTELLIGENCE AND BLIND OBEDIENCE.
[Renseignements sur l'ennemi et Obéissance passive.] (Conclusion Captain Jacques

The author points out the results of the French blunders at Virton and compares the French and German actions. The Germans, instinctively, decided correctly and deployed; the French adhered rigidly to rules and their columns were held tightly to the roads and ordered to continue the advance.

The French doctrine failed at the beginning of the campaign and this failure resulted in heavy losses.

Instructions and orders assigning places, time, space and missions to units are the adaptation of the plan of campaign to a doctrine.

The commander who believes that his duty has been performed after his orders are issued and that events will take place as he has anticipated, is in grave error. The first thought of a real soldier must be obedience to superior orders. There are occasions, however, when a decision must be made contrary to existing instructions. Only brave and well disciplined men will be capable of exercising such initiative.

The term "blind obedience," a legacy of the old days, serves today only as a shield for pusilanimous characters. Instructions must be given elastic interpretations and the dissemination of a sound doctrine is the safest and most intelligent way to assure the successful execution of the plan of the higher command.

THOUGHTS ON THE LIAISON BETWEEN ENGINEERS AND THE OTHER ARMS.
[Réflexions sur la liaison du génie avec les autres armes.] Major General Coppens

The engineer work, particularly demolitions, is of such importance in war today that a fuller understanding is essential in the higher commands. There should be an engineer officer attached to all staffs in the field. Motorization and mechanization have added importance to the work of engineers.

Engineers are very valuable for river crossings. According to the author it was not until 1918, after four years of war, that staffs became thoroughly familiar with engineer work. At the beginning of a campaign, especially where there are a large number of reserve troops, the troops and the staff are not very familiar with each other and this lack of familiarity fails to make use of engineer troops to fullest extent.

CANADIAN DEFENCE QUARTERLY (Canada)

October 1938

THE BASIS OF AMERICAN FOREIGN POLICY. The Honorable Cordell Hu
THE BRITISH EMPIRE AND WORLD PEACE. Major Lisle
WHERE DO THE TANKS BELONG? Lieut.Colonel Burns
THE DEFENCE OF THE WEST COAST. Prof. Lower

THE SINO-JAPANESE CONFLICT. THE LUNG-HAI OPERATIONS, FROM THE BEGINNING OF JANUARY THROUGH THE THIRD WEEK OF MARCH. Colonel Nikolaieff

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BY MAJOR T.R. PHILLIPS, Coast Artillery Corps

4 June 1938

CONCERNING THE RED ARMY.
[Sur l'armée rouge.]

The Russian correspondent of the "Neue Freie Presse" recently published an interesting opinion on the Red Army. During the exhibition on Red Square, he writes, on the day of the twentieth anniversary of the Bolshevik Revolution, foreign diplomats were able to admire at their leisure the spectacle of super-tanks, which produced a really imposing spectacle.

Only a few weeks have passed since this majestic parade, but rumors circulated in Moscow concerning Toupolev, the builder of bombardment airplanes which took part in this Red Army show, disappeared.

The present Russian army is constructed on a much more solid basis than the pre-war Imperial Army. In 1913, during the weak period of Russian industry, production of steel amounted to four and one-half million tons; last year it had reached sixteen and one-tenth million tons. In 1933, for each soldier Russia had electric power amounting to 7.4 horsepower; in 1936 it had developed 12 horsepower per soldier. The war budget of this year amounted to twenty-three billion roubles ($2,300,000,000); this number speaks for itself. One should remember also the strategic regrouping of industry in accordance with the plan of Fersmann-Karpinsky, the creation of the army of the Far East, with the ability to maintain itself without help from European Russia; and finally this circumstance that in spite of disorganization not yet completely overcome, everything was still in a period of development, and that everywhere new sources of basic materials are being opened, particularly in Siberia which now is for Russia an immense reservoir of coal.

Taking into consideration this colossal economic base and also the inexhaustible reservoir of men, the world does not understand the lack of action in the Far East. Never before has the Russian Bear been so harassed, never before have they been so pushed in the Far East as today. An English military writer remarked with absolute truth that the Japanese invasion of Mongolia threw the entire Russian flank back from the Pacific Ocean to Lake Baikal. The blow which now can be directed against Russia across the Gobi Desert menaces the heart of its Asiatic positions and in spite of this Russia does not react in the slightest to these events in the Far East.

In reality the world has no cause to complain of the pacifism of Moscow; during the past twenty years humanity has endured enough of planetary and world-wide plans of Moscow and if Russia appears to be returning into its shell, the world has no cause to regret it. What are the dimensions of the decomposition in the crisis which has developed in Moscow? The world regards with astonishment a country whose leaders descend with such facility into disfavor with the government. Will the armed forces of this country remain long in support of the government? The response to this question alone will supply a solution to the Russian enigma. It is difficult to know, on account of lack of information, if the Soviet government practices a policy as pacifistic as that indicated by the Austrian correspondent. According to the "Daily Telegraph" of London, the Soviet representative at Tokyo protested to the Minister of Foreign Affairs, Hirota, against the direct appeal to war against the Soviet Union and the injurious attacks against the Russians contained in an interview given a newspaper by General Araki, former Minister of War and now a member of the Superior War Council.

The Russians do not limit themselves to words. In the middle of September the "Morning Post" wrote: "The Soviet Union is constantly augmenting its aerial forces in the Far East; it is daily sending new bombardment airplanes there. It is said openly in Moscow that Soviet aviation will soon be able, without great effort, to reduce Tokyo and Osaka to ashes."

In Russia they are constantly building new aviation factories. One has just been completed on the Black Sea which will build 150 machines a year. During the current year, 100,000 new aviators have been instructed.

On the other hand, the Russians are also preparing the nation for the conception of war, and Kalinin, in a speech at Leningrad, announced the views of the government in connection with the elections:

"We are criticized," he said, "and we are asked why we should vote, if there is but one candidate who naturally will be elected without opposition. I answer to this: If the considerable majority of the electors vote, many of the Fascist chiefs will be forced to say: 'Among them there is not only a strong army, but also a great force which sustains this army'.

"I estimate that the Red Army is the best in the world. But it should be supported by a powerful nation, well organized. The army will feel itself invulnerable only if it knows that it is supported by a powerful organization of the working masses.

"The war which approaches will be of greater dimensions than the last imperialistic war. The trains should arrive at the front with absolute precision, projectiles should explode without difficulty; the nation should understand what the front requires at any given moment.

"In case of sudden aerial raids, the population should not become panic stricken. Work in factories should continue as always, even though many men have left for the front. Industry should augment its production many times. All this will not fall into our hands from the skies.

"The electoral campaign has great educational importance. The citizens should understand that they also are combatants in the revolutionary army."

10 June 1938

THE SECRECY OF THE MOBILIZATION.
[Le secret de la mobilisation.] Colonel Baron

It is neither too late to return to the days that preceded the Anschluss, nor purposeless to do so. As I have stated formerly, I believe that the German high command expected to find in the march on Vienna an occasion to give a baptism fire to a dizain of its divisions.

But this occasion of bringing out, more or less brutally, the strong and weak points of Reichsheer was refused it. To vanquish without peril, one triumphs without glory.

In spite of this, the operation against Vienna, prepared and directed by General von Bock, is not without military interest. It permitted the High Command of the German army and the German staffs of the Third and Fourth Groups of large units to try out, at least in Saxony and Bavaria, the mobilization effectuated with the utmost secrecy, since no news of it leaked out to foreign countries.

Proof was furnished that ten German divisions (of which two were motorized and two armored) could be placed on war footing by individual assembly of reservists, by requisition or purchase of the vehicles or material necessary, and brought to readiness on the frontier by the suspension or stoppage of all commercial traffic on railroads and roads, without any word whatsoever on this subject, without a detail or the slightest indication, appearing in the German or foreign press.

Certainly an operation as delicate as this demanded a qualified director. This director existed in the person of the General of the Infantry, Fedor von Bock, a specialist of camouflaged organization.

In 1922 and 1923, the time of our expeditions on Frankfort-sur-Main and in the Ruhr, Lieutenant Colonel von Bock was Chief of the General Staff of the Third Region in Berlin. With the help of Major Buchrucker, Retired, he created the celebrated Black Reichswehr, whose existence remained unknown for a long time, even in Germany. They united to form this body of troops, intended to cover Brandenberg against Poland, thus permitting the official Reichswehr to turn entirely toward the west. This time Buchrucker was the illegal head of the enterprise and Bock was the legal head. To prepare to organize and execute in the shadows, while knowing how to keep himself covered by legal authorities, of whatever sort they are, such was the specialty of Fedor von Bock. It should be noted equally that his former associate of 1923 has been reintegrated with the grade of Reserve Colonel and placed at the disposition of the Chief of Staff of the Reichsheer, with the rank of Chief of Section but without definite assignment. Colonel Buchrucker was indicated as liaison agent between General von Bock and the Sections of the General Staff of the army concerned with the organization, with the concentration, and with the advance on the eastern front.

Now that Anschluss is realized, Fedor von Bock, promoted to Colonel General, has returned to Dresden, from where he is ready to spring a new concentration with the suddenness of a storm.

He will be powerfully aided from Vienna, seat of the Fifth Group of large units, by General of Infantry List, who has commanded the Fourth Region under his orders since 1 October 1935, and who seconded him in the secret mobilization of units of the Fourth Army Corps — like master, like student!

In the light of these facts there is no occasion for astonishment about the troop movements signalled by British reporters over the length of the German-Czech Frontier. To concentrate, to disperse organizations without attracting notice, without, and above all, that the object of these goings and comings should not be discovered, this is a game with the three German military personalities that I have just mentioned.

I should add that this duty, extremely delicate and arduous, is supported in Berlin by a centralized counter-espionage service, covering everything that concerns the ground, the sea and the air, under the expert direction of Vice Admiral Canaris, who operated himself as a secret agent during and after the World War.

12 and 13 June 1938

THE REASON OTHER COUNTRIES HAVE BEEN ABLE TO PREPARE PROTECTION AGAINST AERIAL DANGER
[Pourquoi dans d'autres pays a-t-on pu préparer la protection contre le danger aérien?] General Niessel

In previous articles I have shown that France is very much behind in protection of the population against air bombing. In spite of certain measures taken since, we are still far from being ready. It is thus opportune to investigate how and why other countries have been able to accomplish important results in this domain. The means which have been found good other places should be good equally for us. It is necessary to have recourse to them if one would have a good passive defense organization.

The choice of the superior direction and its instruction is of first importance. It is obvious that if the chiefs of the service do not know their task, they will be incapable of training and of directing their subordinates. In Germany, Italy, Poland, Russia and Japan, this is the first procedure. To recruit the directing personnel they have appealed largely to retired generals and superior officers. In Japan, general officers exercise territorial command, themselves directing the whole of the service. In England, where they depended until last year upon private initiative, the first act when the government decided to take real steps against aerial danger was to open a school for the training of directing personnel.

These could thus be imbued with the essential principles, and false ideas susceptible of orienting them into incorrect procedures were eliminated in advance. Certain false ideas could be particularly injurious. We cite but two, but they are characteristic.

We constantly hear talk of the aerial chemical danger, from which the public deduced that the principal aerial danger arises from the employment of combat gases and as a consequence that it is necessary above all to protect themselves from these. But in reality, the projectiles employed the most are high explosive bombs, because it is much more difficult to protect against their destructive and deadly effects than against gases. Thus it is against them that it is necessary to choose refuges. Incidentally, because there is some chemical danger, it is proper to seal these refuges against gas. We have seen constructed, sometimes at great expense, refuges capable of receiving hundreds and even thousands of people. Such refuges should be prohibited, other than in exceptional cases. Inevitably at their entrances there will be enormous jams, producing grave accidents. Besides, if unfortunately one of these refuges were broken through by an explosive bomb, or gassed, a veritable disaster would ensue. The German regulations on the establishment of refuges judiciously describes, to disperse the risks, that a single refuge should not be larger than fifty persons.

Once the directing and constructing personnel has been trained, it becomes possible to organize regional schools for the training of numerous instructors who will train the executing personnel. In Germany, the fifteen commanders of aerial defense regions each have a general staff and a regional center of instruction, and there exists altogether in Germany, 3,600 centers of instruction, with 9,400 instructors, for the training of personnel of the different services. For our country these services will require at least 500,000 to 600,000 persons, even more.

But in order to recruit such a considerable personnel which, in principle, should be exempt from military obligations and as a consequence voluntary, it is necessary that the entire population should realize the necessity of recruiting and instructing it, and that it approve and encourage the men and women who volunteer for this duty. The mass of the population should thus be educated to the necessity of and the possibility of organizing the defense against the aerial danger. It should understand the essential principles and consent to aid the execution of the orders that are given it.

In all countries where good results have been obtained, they have commenced by talking about air defense in all the schools so that the children will discuss it with their parents. In Germany teams of students exhibit for the families and report the results. In schools in Italy, children are periodically exercised with gas masks on. This propaganda through the schools is equally very much practiced in Poland; in Russia, a society, the Ossoaviakhim, with fifteen million adherents, is specially charged with the education of the population. Delegates are required to inspect localities to determine the state of the defense plans, the houses to make certain that those designated to serve as refuges are suitable for this role, and that the barns are clean of everything easy to set on fire. A special museum of air defense has been created at Varsovia. Here the superior personnel is instructed. From here a special train leaves from time to time on a propaganda tour to all the important localities.

With reference to organization, other countries have been articulated into regions of aerial defense, which respect as much as possible the boundaries of the normal administrative units. Cities in their turn are re-divided into sectors, these, according to circumstances, into groups of houses and important buildings which receive a special leader. All this hierarchy of responsible men have their duty precisely limited, and can study their role or educate their subordinates, according to the echelon in which they are situated.

21 June 1938

THE SITUATION ON THE POLISH-SOVIET FRONTIER.
[La situation à la frontière polono-soviétique.]

Under the title, "Letter from Varsovia," the Deutsche Wehr has just published a very interesting letter from M. Agricola from Poland. M. Agricola was on Hindenburg's General Staff for two years. He lives in Poland and has had many interviews with Polish officers who claim to have very precise information on the spirit and value of the Red army. The recent liquidations of the leaders of this army have resulted, according to his informants, in an army without chiefs. And an army without leaders, they say in Poland, is not an army.

Without considering that it appears dangerous to supply arms to a population whose state of mind is too well known, it is recalled that hasty motorization and the Soviet aviation have only a relative value and this for only a short time. Unquestionably, after mobilization, spare parts will shortly be lacking, and the administrative, communications and supply services are deficient. The Polish impression is that the attempt to put the Soviet army into action would be accompanied with great difficulty.

The closer one approaches the Polish-Russian frontier the more the region becomes abandoned and sad. In contrast to the center of the country, there are few villages. Poland has a Russian frontier of about 600 miles to defend. Along it they maintain a frontier guard. These troops are carefully selected and constitute the elite of the Polish army. Their service is hard and differs from that of most troops in continental Europe in that they have, in addition to military duties, the mission of cultural instruction of the population. They also construct roads, military works and build schools.

Considering that the Russian cavalry, in case of war, is expected to propagandize the enemy population and induce it to revolt, the Polish population of the entire frontier is instructed by their own troops on the desperate condition of the workers and farmers of the "Soviet Paradise." According to M. Agricola, the Polish frontier population is not only thoroughly informed of all that occurs in Russia but is decidedly anti-communist.

The Russian side of the frontier from the Baltic to the Black Sea includes first a band of territory six miles wide completely deserted. The countrymen and the entire population have been transported to interior Russia by force. The new occupants of the deserted zone are agents of the secret police and they make it impossible to enter Russia in any manner except over the railways. On the Polish side the frontier is also hermetically sealed by the frontier guards and no one is able to pass through.

23 June 1938

COLLABORATION OF THE PARACHUTE, AIRPLANE AND INFANTRY.
[La collaboration du parachute, de l'avion et de l'infanterie.] General Rouquerol

Efforts to employ parachutes have not yet given much satisfaction to its advocates. They have always had the object of landing small detachments with a special mission of destruction of important factories, bridges, etc. The Italians, in a maneuver organized for the Emperor, in Libya, gave an original and significant point of view to this method, as well as greater amplitude to the effort.

The mission of the parachutists was not to fight, but to prepare a landing field for heavy transport planes loaded with troops and all the material of combat. It followed somewhat the following scheme: The commander chose a landing ground near the objective. This choice could only be made by an examination of the map, conceding the ground could only be in the rear of the enemy lines. Two battalions of parachutists, protected by a large amount of pursuit, are dropped on the landing ground chosen. They defend themselves, if necessary, but their mission does not require them to attack. It consists in marking a suitable landing field for the landing of planes to follow. For this purpose they are provided with signal panels. They spread out and mark all the points dangerous for airplanes.

This work being completed, an aerial convoy carrying the effectives of a brigade, with two batteries of 65's, two platoons of cyclists and the necessary services, is started toward the landing ground. The convoy is protected by pursuit and bombardment aviation. These forces are debarked rapidly and are ready to execute a surprise operation combined with a frontal attack. The transport of supplies is by airplane.

The conception of this maneuver appears to be a development of the operations in Abyssinia, where, it may be recalled, the supply of troops by aviation was developed progressively to the point that in the latter part of the campaign an army corps had no other means of supply.

We find equally a reminiscence of the Ethiopian War in the collaboration of the terrestrial combatants and the airplanes in attacking the defenders with machine guns and bombs. In the three principal affairs of the campaign: those of Tembien, Sciré and Lake Asciangi, aviation caused terrible losses to the Abyssinians.

We find a detail of the maneuver, as reported by the press, that should be marked especially — the employment of toxic gas.

This seems to be the first allusion to this means of combat in a maneuver theme among any of the nations signatory to the Versailles Treaty. This statement is of a nature to indicate that, in case of conflict, the Italian army is prepared to use gas before they are constrained to do so, as the French army is, by the necessity of retaliation.

28 June 1938

POLITICAL DIRECTION IN THE RED ARMY.
[La direction politique dans l'armée rouge.]

The new regime introduced into the Red army, which gives preponderance of the political over purely military instruction, appears to give results

that are hardly satisfying to the Soviet military authorities themselves, if we can believe the assertions of "Krasnaia Zviesda," the official organ of the Red army.

It appears that the leaders of the Komsomol organizations promoted to commands in artillery units have shown complete ignorance of the duties confided to them; as a result, special schools for their instruction have been organized hastily. But actually, inspections have shown that the newly-named officers do not even understand their professors. These talk about logarithms, but the officers have never even heard of algebra, know nothing of trigonometric formulas, and have never had in their hands the most elementary manual ot geometry. They complain that the professors give them incomprehensible explanations, but the professors answer that artillery instruction is not a primary school, and that the officers should be able to unravel it; some officers have resorted to private tutors, but they have been forced to pay them.

The journal demands in consequence that the professors pay attention to the degree of instruction of these suddenly made officers and give a course of artillery instruction appropriate to the students.

In a communication on the results of inspection of military posts, it was stated that the condition of the posts in the Moscow inspection was not satisfactory from a sanitary point of view. There are no baths. Food was not served at the hour scheduled. There is no bed linen, even for the commanding personnel.

At a target practice in one of the inspections it was discovered that a deception had been organized with the aid of the political commissar of the organization. Fire was supposed to have been conducted by young soldiers of the last call, and in their place young officers and chosen students had been substituted.

The soldiers complain that since the increase in power of the commissars and political guides there is no longer any means of obtaining information of what is going on in the world. Actually, they are all interested in the international situation, but the political guides have ceased to tell them about it and elude conferences on the subject, pretending lack of time.

Commissars of the inspection of Kiev and Leningrad are accused by the Communist personnel of the army of violating military discipline. At one of these conferences the delegates declared that it was impossible to get the political guides to examine serious military questions. For the functions of political guides and even of commissars, men have been designated without the slightest comprehension of the need of secrecy in the military service. Some of these, being informed of secret matters, hastened immediately to their friends to boast of the information received. It has been established that in the Leningrad inspection a whole series of secret orders to the army had been divulged by these political guides.

In these conferences the political directors, whose presence in the army could not be tolerated, have been named openly. Among this number are found the political commissar of the Military Engineer School, and the conference demanded that he be relieved of his functions as commissar of the Academy.

It appears that the training of political personnel of the army requires reform that will make it able to fulfill its functions. The Political Military Academy, Lenin, at Leningrad was supposed to prepare the superior leaders of the political commissars for the army. But the commissars that it trained did not always know how to write, and certain of them could only read with hesitation. Recently the Academy was transferred to Moscow. Personnel in command has been completely changed.

The exhortations of the commissars and political guides do not appear to have a sufficient influence to struggle against the violations of discipline which are becoming more and more numerous recently, and the political direction of the army decided to have these organizations write to the parents of the soldiers asking them to urge better conduct on their children. Some parents were requested to present themselves in person to the commissar of the organization; others were asked to write letters. According to the military journal, the pleading of the parents had a very good effect on some of their children, but at times the soldiers answered by complaining about the conditions under which they lived: that they were badly and irregularly nourished; that dinner, which should have been served at 3 o'clock, was not ready until 6 or 7; that they asked for more cleanliness, but the hot water bathhouse had been demolished and there was no place in which they could bathe themselves. Certain parents, having received such responses as this to their advice, addressed themselves to the superior, who took measures against the responsible officers.

Altogether in returning to the former duality of power in the army, and increasing the authority of the political organs, the Soviets appear to have diminished greatly the combat capacity of their army.

12 August 1938

SOVIET ARMAMENT.
[Les armaments soviétiques.]

On the subject of the Army of the Far East, the Japanese obtained some information from a high Soviet functionary, Luchkov, chief of the interior direction of the province of the Extreme-Orient, who deserted and escaped across the Manchurian frontier. He declared to the Japanese authorities that he was a traitor to Stalin, but not to his country; that the whole nation hated the Dictator. He stated that the Soviet command had, east of Lake Baikal, the following forces: an army of 400,000 men, 2,000 airplanes, and 90 submarines, the larger part ot which were at Vladivostok. Luchkov had aroused considerable attention in the newspapers on the subject of his action against spies; in a year he had discovered ten groups. He also had been active in crushing Fascists and Trotskyists, among whom were a large number of officers and engineers of the railways. In the Far East the power of the political commissars had not been extended over the army to the extent that it had been in European Russia, and Luchkov sought to force the General Staff of Blücher to the same regime that Ejov and Mekklis applied to the General Staff of Chapochnikov. Having received an order from Blücher, who had returned to Moscow, and seeing that his secretary had also been called there, he resolved to escape as soon as his wife notified him that she was safe in Poland. Upon receipt of her telegram: "I embrace you," he said that he went to make an inspection on the Manchurian frontier and ordered troop movements such that he had a chance to escape. A document written in blood was found on him, in which General Tapine testified against the treatment inflicted on prisoners to draw from them "voluntary confessions." General Tapine had committed suicide to escape torture. Luchkov, brought to Tokyo, declared that he had fled because of the discovery by the GPU of a plot against Stalin's life before the overthrow of the Soviet regime. It was said in Tokyo that he had been the principal organizer of this plot. Major Grantskevitch, of the Soviet 36th Division, escaped almost at the same time as Luchkov and for the same reason. It should be noted that Moscow did not deny these evasions reported by the Japanese newspapers.

MANEUVERS OF AN ENGLISH MOTORIZED DIVISION.
[Un exercice de division anglaise motorisée.]

The maneuvers of the British 2d Motorized Division, which took place some time ago, have furnished interesting observations.

The maneuvers included the movement of the 2d Division a distance of 76 miles to take place in 36 hours, that is during two nights and one day over two routes; 2,000 vehicles took part. For the movement it was provided that groups of from 5 to 15 vehicles, with long distances between groups up to a mile, would be used.

On each of the routes of march, four regulating posts were placed. These were to keep groups informed of the passage of the preceding groups and to detour them in case of traffic jams or interference. In theory the detours were not to interfere with movement on the axis of march, but in practice it was found that this could not be prevented in certain cases.

Road blocks were placed on the routes without informing the regulating posts. The division placed military police at all crossings of the route.

Aviation was called upon to reconnoiter the column while marching and also to simulate attacks on the columns. Since there was no defensive aviation nor antiaircraft defense the squadrons were able to fly very low, even in daylight, preventing this part ot the test from having realism.

Aviation discovered twenty march groups and made seven bombing attacks. It was able to discover groups at night without the use of parachute flares, due partially, at least, to the fact that complete extinction of lights was not enforced. The 4th Tank Battalion was detoured at daylight and concealed in woods and remained there all day without being discovered. The 2d Heavy Artillery Group went by a circuitous route without being discovered.

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RUSSIA AND THE EAST. Major Wheeler

DIE KRAFTFAHRKAMPFTRUPPE (Germany)

BY CAPTAIN H.N. HARTNESS, Infantry

June 1938

TANK TACTICS. MODERN CONCEPTIONS OF THE EMPLOYMENT OF TANKS BOTH IN THE GERMAN AND IN FOREIGN WRITINGS.
[Panzertaktik. Die gegenwärtigen Auffassungen über die Frage des Kampfwageneinsatzes im in- und ausländischen Schrifttum.] Major Allmendinger

The World War demonstrated that the means of attack employed at its beginning were unable to bring the decision when confronted by modern machine weapons. Consequently the air arm and tanks entered the picture as a new means of attack. Great differences of opinion on the employment of these two new weapons have appeared in the military press of the world. The strategical thoughts of General Douhet produced loud and long debates on the employment of the air force. Likewise, the employment of tanks is advocated in many points of view and these points of view are in themselves often changing. For instance, the principles laid down by the French in their "Regulations for the Tactical Employment of Large Units," dated 12 August 1936, have been superseded and emphasis now is placed upon the cooperation to be obtained between the tank, infantry and artillery. But all of these writings and points of view have crystallized themselves into two basic conceptions for the employment of tanks:

(1) The independent employment of tanks on strategic missions; and
(2) The employment of tanks to assist the infantry.

What follows is not the official opinion of the military heads in France, in England, in Germany and in other countries; rather it is a short resumé of present-day conceptions as discussed in the military press of the world.

I. INDEPENDENT EMPLOYMENT IN STRATEGIC UNITS

The basic principle enunciated by the exponents of this type of employment is that the tank must be employed corresponding to the peculiarities and capabilities of the vehicle. Independently operating tank units, without binding themselves to the slow movements of the infantry, shall achieve the decision. Because of their speed tanks alone shall accomplish the breakthrough. In order to achieve greater speed, heavy armor must be reduced. The defense must be overrun by the employment of a tank mass. Exploitation of this initial tank success shall be achieved by motorized infantry units.

The outstanding advocates of this doctrine are the English General Fuller and the Austrian General Eimannsberger. General Eimannsberger contends that it is a tactical monstrosity to force the tank to accommodate itself to the speed of infantry.

Based on this conception, how shall the tank attack be launched? The assembling of the tanks must take place during the night immediately preceding the attack, in order that surprise may be guaranteed.

First Wave: Breaking into the hostile position with surprise, the tanks echeloned in depth, with the mission of gaining the maximum amount of terrain. (In Abyssinia up to 100 kilometers in one day.) Close behind the first echelon follow motorcycle battalions, accompanied by attack planes and bombers. Strong centers of antitank guns are to be avoided. Specially constructed tanks will transport bridges with them. The tanks shall beat down machine-gun and rifle groups and open the way for the motorcyclists.

Second Wave: Reinforced infantry with antitank guns and infantry cannon, whose mission shall be the beating down of antitank guns.

Third Wave: Motorized and mechanized accompanying artillery; also antitank battalions provided for use against a possible hostile tank counterattack.

Fourth Wave: Signal troops, medical troops, bridge troops, supply, gas and oil, and ammunition columns, all motorized.

Airplanes of all kinds shall protect and support these various waves and when necessary supply them with ammunition and food. Upon reaching the objective this force shall defend itself against the expected counterattack and shall hold the ground gained.

REASONS

The advocates of this type of employment of the tank maintain that surprise will prove decisive. During the World War thirty-six hours elapsed before the enemy received reinforcements on the battlefield; today, however, the entire hostile air arm can be expected over the battlefield in a few hours. Therefore, it is a question of achieving the utmost most quickly and with the greatest surprise at the beginning of the operation and of doing everything to utilize the initial superiority and to place the enemy in as hopeless a situation as possible before the arrival of his first reinforcements. In order to guarantee the rapidity of the penetration the tanks cannot be held up or delayed by supporting arms. The attack must be based upon the tank and not upon the accompanying infantry. It is, therefore, necessary that those arms assisting the tank be brought quickly on the field of battle and that they have armor protection. These assisting arms must be so equipped and so employed as to further the tank operation.

II. THE TANK AS ASSISTING ARM TO THE INFANTRY

According to this French idea tanks of the various types may be given the mission of accompanying the infantry in attack. As accompanying tanks they are attached to the infantry. Moreover, tanks are provided, organized in depth, which have the mission of destroying hostile automatic weapons. These latter tanks remain under command of the division commander who in turn assigns them missions. The French regulations define five types of attack, differentiating one from the other according to the situation, the terrain, the technical capabilities of the tank and hostile morale. The primary difference, however, lies mainly in the organization of the infantry and the tanks. The medium breakthrough tanks "Char D" (20-mm armor, 8 kilometers per hour speed across country), are provided for the protection and support of the infantry attack. How then is the course of this attack conceived?

(1) Artillery concentrations or barrages, followed by heavily armored tanks accompanied by artillery observers. This artillery fire blocks off areas of the terrain which shall be mopped up by the tanks.

(2) The infantry with attached tanks follows as a second wave. The infantry following the tanks, beats down those machine-gun and rifle groups still existing. In this manner the infantry is able to get over the last most dangerous 300 yards with least losses and greatest success.

(3) The artillery concentrations or barrages are advanced at the rate of six to eight kilometers an hour. (This requires exact computation of time tables and designation of areas.) When the tanks reach the hostile range of the artillery they continue the attack independently.

(4) It is not until the break-in and partial breakthrough has been achieved that the cooperation between tank units and motorized infantry begins.

ESTIMATE

According to General Eimannsberger, this close binding of the tanks to the infantry means that the tank is unable to exploit its speed, which in the main is ten times that of the foot soldier and according to him this type of tactics is a practical monstrosity. The greatest disadvantage lies in the waste of time; waste of time is always a deadly tactical sin for the attacker and more so today than in the past. Even in the heyday of cavalry nothing similar was demanded of it. In the wars of Napoleon cavalry did not attack and then wait for its infantry; on the contrary it sought always to utilize to the utmost the speed which lay in the legs of its horses.

Recently, General Culmann expressed his thoughts in "La France Militaire" against this French method. He demanded a complete test and reconsideration of the present tactical doctrine as indicated in the last French regulations.

It might be added that by binding the tanks so closely to the infantry the disadvantages which are inherent, such as poor visibility while traveling, especially in smoke, gas, fog and dust, the difficulty of transmitting orders, vulnerability of the tank to the antitank weapon increase, whereas speed and surprise indicate a preference for the employment of tanks on strategic missions.

WHAT DOES THE OTHER SIDE HAVE TO SAY?

Seen from the point of view of the antitank man, the tank accompanying the infantry, as advocated in the French system, is believed a less dangerous enemy, because the infantry accompanying tank is not so heavily armored and equipped as those intended primarily for a breakthrough. Moreover, the slow moving attack, accompanying infantry, offers a much better target.

Since tanks operating or employed on strategical missions will seek to utilize to the maximum their great speed, it goes without saying that this type of employment will be the most unpleasant for the antitank man. Such an attack will provide targets which are small and fast moving. The latest English experience from the maneuvers of 1937 is commented on by Liddell Hart as follows: "Against antitank defense it is best to advance on a narrow front under the protection of smoke." This type of attack will be the most difficult and the most dangerous for the antitank man to defend against.

CONCLUSIONS

From the preceding opposing opinions it can be seen that the differences are not so abrupt as they were a few years ago. The defender of the French opinions holds to the point of view, however, that the employment of tanks on strategical missions against an undefeated and unshaken enemy can mean only the complete destruction of these tanks. The other side, the English opinion, is as we have seen, the fixed conviction that the close union of the tank with the infantry is a tactical monstrosity.

Because of the numerous possibilities existing in modern warfare, the solution of this question of the employment of tanks can be found only in a compromise. There will be tank units which, operating with motorcycle troops, engineers, air units, parachute troops, supply columns, all armor protected, will have missions ot striking into or behind the enemy. There will also be the so-called accompanying tanks which will be allotted to infantry and which must conform their movements and actions to those of the infantry. Concerning the much discussed and much argued question, whether the tank can exist as the main weapon in battle or whether it must remain as an auxiliary weapon for the infantry, can only receive a clear answer in war.

MEANS OF TRANSPORT IN THE SERVICE OF SUPPLY.
[Die Beförderungsmittel im rückwärtigen Dienst.] W. Paschasius
(See digest, page 30.)

MARINE CORPS GAZETTE

September 1938

COLLABORATION OF THE NAVY WITH THE ARMY. Lieut.Colonel del Valle
POST WAR DEVELOPMENT OF AUTOMATIC WEAPONS. Lieutenant Johnson
WAR PLANS — DISCUSSION FRANCO-PRUSSIAN WAR 1870-71. Lieutenant Reeve
WHAT DOES THE EUROPEAN SITUATION MEAN TO US?

MILITARWISSENSCHAFTLICHE MITTEILUNGEN (Austria)

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

April 1938

THE CONTROL OF THE ARMED FORCES OF THE GREAT POWERS.
[Die Wehrmachtleitung bei den Groszmächten.] Field Marshal Schäfer

The army and the navy were the only two branches of the service prior to the World War, and were controlled independently in all the Great Powers. As soon as the war broke out in 1914, Austria placed her navy under the supreme command of the army, while other countries kept both services under separate control and depended upon a system of cooperation.

By the end of the World War, all great powers possessed an air force. Great Britain and Italy were the first ones to form an Air Ministry. Germany now has a war minister which exercises full control over the three branches; Great Britain has a coordinating minister who, however, exercises no actual command over these forces. France has not solved the problem yet and has not adopted a definite policy concerning the control of her fighting services, namely, army, navy and air force.

THE DAWN OF THE TANK.
[Kampfwagendämmerung.] Lieut.Colonel Heisz

Tanks have greatly improved and increased in numbers, while antitank defense is more efficient than it was during the World War. However, it is impossible to measure accurately the value of the tank arm until two adversaries of more or less equal strength clash.

GREATER GERMANY. POLITICAL AND MILITARY EVENTS IN THE FIRST QUARTER OF 1938.
[Groszdeutschland. Das wehrpolitische Geschehen im ersten Vierteljahr 1938.] (I) Major General Paschek

An account of the main events that occurred in February and March of this year. The incorporation of Austria in the German Reich is an epochal event in Central Europe.

THE IMPORTANCE OF FORESTRY IN WAR ORGANIZATION.
[Die kriegswirtschaftliche Bedeutung der Forstwirtschaft.] Lieutenant Handel-Mazetti

The lack of raw materials may cause a country's defeat in war, regardless of her successes in the battlefields. During the World War, Austria-Hungary was self-supporting as regards timber; Germany obtained part of her requirements from occupied territory; Great Britain obtained her supplies from France, while France exported her own timber supplies to the limit. Large areas were devastated during the war, which according to estimates it will take sixty years to recover. Britain, France and Italy are making great efforts in the way of reforestation.

It is very important to preserve and exploit forests in time of peace. Timber supplies three important substitutes: wood gas, wood sugar and cellulose for the manufacture of silk.

The author believes that Germany should adopt a plan whereby she could become more independent of timber imports than she is at present.

CIRCULAR MOUNTING FOR MECHANICAL-ELECTRICAL TRAINING OF ANTIAIRCRAFT MACHINE GUNS.
[Drehring für mechanisch-elektrisches Richten von Flugzeug-Maschinenkanonen.] Dr. Server

Description of a circular mounting for the 20-mm "Oerlikon" machine gun.

THE CONFLICT IN THE FAR EAST.
[Der Konflikt mit Ostasien.] General Wiesinger

The author believes that while China's military, industrial and financial position is serious, her situation is not hopeless. Her enormous area and the time that will be required for her conquest will exhaust Japan's resources.

The author describes the Japanese advance on Nanking about the middle of December 1937.

May 1938

INDUSTRIAL STRATEGY OF RAW MATERIALS.
[Wirtschaftsstrategie der Rohstoffe.] Lieut.Colonel Ringel

Industry and war strategy are closely connected. The World War taught all countries the necessity of industrial organization, in order to be as independent as possible of the import of raw materials.

This article was written before the annexation of Austria. It is pointed out that Austria could produce more meat. Many suggestions are offered such as making artificial cotton from wood, artificial wool from skim milk, and full development of all water power.

GREATER GERMANY. POLITICAL AND MILITARY EVENTS IN THE FIRST QUARTER OF 1938.
[Groszdeutschland. Wehrpolitisches Geschehen im ersten Vierteljahr 1938.] (II) Major General Paschek

The most important event of this period is the annexation of Austria. The Austrian army has now become the 5th group of the German army and has been organized into two army corps and other units.

SOME ASPECTS OF THE SPANISH CIVIL WAR.
[Betrachtungen zum Spanischen Bürgerkreig.] Lieutenant Ehler

The author discusses the import and export trade of Spain and comes to the conclusion that Spain is an agrarian country, producing large quantities of products for exports. She possessed plenty of raw materials, and a shortage of finished products. As an ally, she has importance enough to upset the balance of power in the Mediterranean.

The causes of this war are attributed to social conditions. The contrast between the rich and the poor and between the big landowner and the small farmer is tremendously great. The Spanish War has divided Europe into two camps: Britain, France and Russia on the Government side; Germany and Italy on the Insurgents' side. The termination of this struggle is essential to the peace of Europe.

June 1938

THE BOMBARDMENT OF PARIS DURING THE WORLD WAR.
[Die Beschiessung von Paris im Weltkriege.] Colonel v.Lonoarevic-Syposs

A detailed description of the big German gun that bombarded Paris in 1918. This piece was emplaced near Crepy, a village near Laon, at a distance of about 75 miles from Paris. The following data is given:

Length of the gun	111.5 feet
Outside diameter	3.3 feet
Caliber	8.27 inches
Weight of gun	400 tons
Weight of carriage	500 tons
Range of 52 degree elevation	79.5 miles
Highest point of trajectory	24.8 miles
Time of flight	3½ minutes
Cost of the gun	11,200,000 marks
Cost of each round	35,000 marks
Total number of rounds fired	320

The gun required relining after firing 65 rounds. To allow for the wear of the bore, the 65 shells were numbered, each being made slightly larger than the preceding one. The shells were calibrated from 21 to 23.5-cm (8.4-9.4 inch).

The bombardment of Paris began on 23 March 1918. Through its efficient secret service, the German GHQ knew within four hours the result of the first two shots fired. This information was transmitted via Switzerland. By 9 August, 320 shells had fallen in Paris, causing heavy damage. When the German retreat began the gun was taken back to Germany on the last train that got past Soissons. It was eventually taken to Cologne, where it disappeared without trace.

THE STRATEGIC IMPORTANCE OF THE MURMANSK COAST.
[Die strategische Bedeutung der russischen Murmanküste.] Field Marshal Schäfer

Russia has been trying for over two centuries to find an ice-free outlet to the sea, in addition to the Black Sea and the Baltic, both of which can be easily closed by a strong hostile naval power. In the Far East, Japan has prevented her from doing so.

The Stalin canal connects the Baltic and the White Seas via the Ladoga and Onega Lakes; but this canal is only 13 feet deep, is frozen for over six months in the year and is useless, therefore, for ships of any size.

Murmansk on the Arctic Ocean is an ice-free port due to its proximity to the Gulf stream. It is connected by rail with Leningrad. This harbor offers valuable advantages to Russia, enabling her to develop the North Siberian mineral products, furnishes a base of operations against North European countries and is a suitable point for receiving reinforcements and supplies from possible allies.

EXPERIENCES OF ATTACHMENT TO INFANTRY.
[Erfahrungen einer Infanteriedienstzuteilung.] Lieutenant Eimannsberger

This artillery officer now attached to the infantry stresses the importance of mutual knowledge that should exist between the infantry and the mechanized forces and vice versa.

DEPTH CHARGES.
[Unterwasserbomben.] Lieutenant Handel-Mazzetti

The anti-submarine defense measures during the World War were rather ineffective. Numerous depth charges, for example, dropped by

destroyers failed to put submarines out of action. The German submarines U-64 and U-54, sunk the British ship "Justitia" with torpedoes in spite of being subjected to numerous depth charges.

The 300 kilogram (660 pounds) T.N.T. depth charge, according to experiments, can wreck a submarine completely at a distance of 17 yards. This charge contains twice the amount of explosive used during the World War.

The submarine, on the other hand, has also increased in efficiency, being now able to submerge in less time than formerly and sink to a depth of over 980 feet.

SYNTHETIC FIBERS.
[Die Kunstfaser.] Lieutenant Hicker

A description of various kinds of synthetic fibers made from cellulose; also description of artificial wool made from casein obtained from skim milk, from fish roe and from silk waste.

The biggest producers of synthetic fibers today are the United States, Japan, Italy and Germany.

MILITAR-WOCHENBLATT (Germany)

BY MAJOR G.J. BRAUN, Infantry

22 April 1938

IN COMMEMORATION OF THE ANNIVERSARY OF THE DEATH OF CAPTAIN MANFRED COUNT VON RICHTHOFEN.
[Zum 20jährigen Todestage des Rittmeisters Manfred Frhr. v.Richthofen.] Colonel Haehnelt

A biography of the life of von Richthofen.

SIGHTING AND FIRING THE HEAVY INFANTRY WEAPONS AGAINST MODERN TARGETS.
[Richten und Schieszen der schweren Infanteriewaffen auf neuzeitliche Ziele.] Captain Dorow

The modern battlefield no longer affords distinct and vulnerable targets as in the past; instead the opposing forces have resorted to dispersion in breadth and depth and with their weapons have disappeared in covered concealment. These have become fleeting targets during their changes of location, rushing advance or exposure to conduct their fire. At best only one-third of the hostile strength can be located and even this is dependent on the time of day and terrain.

The headquarters and command posts of the lower units, such a battalion and company, and their unavoidable proximity of their reserves, concealed locations of their heavy weapons and crew, the caissons, ammunition dumps, vehicle and animal parks form the two-thirds targets that are invisible even though within range of the heavy weapons. These are the remunerative and vulnerable targets and normally are not dug in.

The artillery should not be solely responsible to neutralize these forces. It will be fully occupied in neutralizing the entrenched hostile positions and hostile artillery.

This all leads to the much debatable question whether to use map firing or indirect firing of the heavy weapons. The general opinion is that this method depends on the following: professional soldiers of long enlistments or ammunition expenditure, or to be left as a secondary task for artillery. Usually this method of firing is tried out once a year, usually at night during the firing tests without observation. Those opposing it counter with the limited time available in actual warfare for such preparations, the ammunition supply difficulties, limited number of hits, difficulty of reconnaissance of suitable targets and their designation, and last of all the inadequate maps and restricted advance.

It is said that range-finding alone takes at least one-half hour and the supply of the restricted 1:25,000 maps are not available in war. Map supply is as important as ammunition supply, but where inadequate can be supplied by the new reproduction methods and augmented by aerial photos.

EMPLOYMENT OF ARTILLERY IS DEPENDENT ON ARTILLERY ORGANIZATION.
[Artillerieverwendung abhängig von Artillerieorganisation.] Major Buhle

A reply to an article by Colonel L.G. Rousseau in the September 1937 issue of "Revue d'Artillerie," relative to the employment of the German heavy artillery during 1914-1918. The author justifies the employment of the heavy artillery against the Belgian fortresses in 1914 even though the ammunition expenditures were high, causing a shortage immediately thereafter.

He describes the action of the heavy mortars on the Nieuport front at Tempelhof Farm where the French or Belgian defenders were able to repel the German infantry attacks despite the fact that these batteries were making direct hits from 300 yards range. He states that this is not unusual and can be expected where the defenders hold on tenaciously.

He explains that the term heavy (foot) artillery was a misnomer and that the junior officers were habitually shifted from the light to heavy artillery and vice versa. Complete cooperation of these two weapons was not developed until the World War. Despite this training the heavy artillery in the early stages was not employed by the staffs to its best advantage in many instances.

Fortunately, states the author, the new army has both heavy and light under one artillery organization, based on experiences of the World War and modern ideas of cooperative employment.

HISTORICAL MILITARY EXAMPLE. No. 3: COMBAT IN WOODS. PART 1 — THE 21ST INFANTRY DIVISION AT BERTRIX, 22 AUGUST 1914.
[Truppen-Kriegsgeschichte. Beispiel 3: Waldgefecht. Teil I. Die 21. Inf. Div. am 22.8. 1914 bei Bertrix.]

This example is taken from the battle of Neufchateau, commonly referred to by the French as the Battle of the Ardennes. The German Fourth and Fifth Armies were opposed by the French Third and Fourth Armies.

THE DESIRE TO COORDINATE AND SIMPLIFY THE MILITARY ABBREVIATIONS.
[Der Wunsch nach Vereinheitlichung der militärischen Abkürzungen.]

Abbreviations are indispensable in military communications since they save time and writing space. Since these writings are used by a restricted circle of readers they naturally can be increased in numbers. Nevertheless, the author brings out in his article, they should be restricted to words most commonly used so as not to require difficult mental process to decipher, especially where errors in interpretation might be serious in the field.

AIRCRAFT OF THE FRENCH AIR SERVICE.
[Flugzeuge der französischen Luftwaffe.]

Continuation of an illustrated description of French military aircraft. A physical and mechanical description of French military aircraft.

THE SPANISH WAR.
[Vom spanischen Krieg.] Colonel v.Xylander

Descriptions of the fighting in the vicinity of Segre-Noguera sector and the battle of Tortosa.

EXPERIMENTS IN ANTITANK NIGHT FIRING.
[Untersuchungen über das Nachtschieszen der Pak.]

A discussion of the employment of the 30-cm searchlights, projected illumination flares for employment in cooperation with antitank firing at night.

29 April 1938

INFANTRY AND TANKS. METHODS OF THEIR COOPERATION IN ATTACK.
[Infanterie und Panzer. Ein Beitrag über Formen des Zusammenwirkens im Angriff.] Major Doege

The author visualizes the conditions to be expected at the outbreak of hostilities in Europe, whether surprise can be achieved as in 1914 and whether the war will be stalemated immediately. He then reviews the methods of employment of tanks by France and England in their late maneuvers.

POSITIONS WITH RESTRICTED FIELDS OF FIRE.
[Stellungen mit beschränktem Schuszfeld.] Lieut.General Marx

A FRENCH VIEWPOINT RELATIVE TO THE COOPERATION OF THE ENGINEERS AND OTHER WEAPONS.
[Eine französische Ansicht über das Zusammenwirken der Pioniere mit anderen Waffen.] Captain Meltzer

A discussion by the author of the article on this subject which appeared in the June 1937 issue of the "Revue Militaire Générale," by Lieut.Colonel Rousseau.

HISTORICAL MILITARY EXAMPLE. No. 3: COMBAT IN WOODS. PART 2 — THE 21ST INFANTRY DIVISION AT BERTRIX, 22 AUGUST 1914.
[Truppen-Kriegsgeschichte. Beispiel 3: Waldgefecht. Teil II. Die 21. Inf. Div. am 22.8. 1914 bei Bertrix.]

In his conclusions the author covers (1) the necessity of reconnaissance in dense woods by mounted troops, cyclists and foot scouts; (2) necessity of contact and communication with the neighboring units; (3) close combat in woods; (4) fire support; (5) signs of panic and methods of stopping it; (6) leadership and command.

THE SERVICE OF SUPPLY OF AIR FORCES. BASED ON RUSSIAN THEORY AND ITALIAN COMBAT EXPERIENCE.
[Das Nachschubwesen der Luftwaffe. (Russische Theorien und italienische Kriegserfahrungen.)] Colonel Nagel

The scheduled and uninterrupted supply of combat and technical material is the fundamental requirement to assure maximum results from military aviation. Not only the numerical strength, the complicated apparatus and special equipment, but also the independent grouping of the combat units at the various theaters of war as well as the method of their employment for combat has forced the air service to organize a supply service independent of the rest of the army.

The step up in flight duration, load capacity and power of the motor has greatly increased the needs of modern military aviation in fuel, oil, grease, munitions, bombs, illuminating materials, etc. According to Russian

sources it is estimated that a light ship would require supplies of about one ton and a heavy ship from 6 to 8 tons. The supply of technical parts has increased about proportionately in order to recondition, overhaul aircraft and provide motors, special equipment, weapons and complete replacement of planes and installations for air bases.

Accumulation of supplies at air bases naturally complicate shifts of these bases in the event of threatened hostile attack or regrouping ot air units. Colonel Afanasijew (Russia) considers it necessary that equipment be echeloned in depth in order to meet the requirements at the front. Likewise, surplus supplies and captured booty is moved to the rear for reclassification and reissue.

The mobile supplies in the advanced airdromes should be sufficient for two offensive flights and those in rear for two to four such missions.

Two to four kilometers from the landing fields will be mobile airdromes with trucks loaded with supplies for combat supplies. Eight to 15 kilometers behind the former the forward airdromes are located with partial transportable supplies. They are equipped with supplies and shops peculiar to the type of ships operating in that locality. These supply various hangars and are in turn supplied from main sector depots which as a rule are located on a railroad.

These depots receive from the base depot in the interior several months' combat supply for the air units working out of airdromes supplied in turn by it. The base depots in turn replenish from the zone of the interior and industries.

None of these facilities, according to the Russians, are organically part of the combatant air units. This gives the air commander greater freedom in regrouping units, etc. Combat air units are not shifted or regrouped to new airdromes or bases until these are completely installed and supplied.

In estimating the replacement rate the life of an airplane is about 50 flying hours, with 50% of the losses over hostile territory and 25% crashes and forced landings over friendly territory. These figures are based on World War figures.

Railroads, waterways, roads, truck trains and transport planes are used in the supply system. The rail and ship transportation carry the bulk of the supplies; the truck trains afford the most feasible distribution means and the air transports the fastest means of supply, especially over unfavorable terrain. England, Russia, and the United States figure on using numerous air transports.

Italy gained excellent experience in supplying its air units in the Ethiopian War. It carried the supplies by ship to Massaua, then they were moved to its principal air bases which were equipped for supply distribution. All other airdromes and landing fields were equipped with mobile motor supply trains and work shops. Trailers carrying air force supplies were attached to the trucks which transported troops or supplies for the troops. According to the "Rivista Aeronautica" each truck train had three trailers equipped for blacksmith, woodworking and machine shop respectively, and a plain trailer to carry the air compressor. These could be placed in operation in ten minutes. Other trailers serve as photo and film developer plant, radio electric lighting plant, fuel or water tank trucks and refrigerator.

THE CONFLICT IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

A continued serial covering the battle of Imperial Canal in the Shantung Peninsula, 21 March 1938.

TROOP LEADING. TACTICS OF THE REGIMENT.
[Truppenführung. Aufgabe 12 (taktik — Rgt.-Verband). Teil II. Lösung.]

Solution to Lesson 12.

6 May 1938

BISMARCK AND MOLTKE AND THE COALITION WAR.
[Bismarck-Moltke und der Bündniskrieg.] General Wetzell

A review of the participation and cooperation of Bismarck and Moltke, the statesman and soldier, in the coalition war.

AIR ATTACKS ON TROOPS AND DEFENSE AGAINST THESE ATTACKS.
[Fliegerangriffe auf Truppen und ihre Abwehr.] (II) Lieut.Colonel Greiner

This article covers the air attack on marching troops. Often night marches are impossible and day marches are imperative. The author reviews the normal precautionary methods of evading detection from the air and then describes the methods of air attack. He cites that the duration of an air attack is very short; in fact, for example, if three ships participated in the attack and each released a bomb every one-fourth or one-half second, that in one second they would have released six to twelve bombs. Therefore, in one minute a hundred bombs could be released and one minute is about the duration of the attack. Such attacks on marching columns or on roads in valleys or passes could produce great numbers of casualties as well as delay due to destruction of roads.

In like manner, the author covers the air attacks by night on marching columns.

TRAINING OF UMPIRES.
[Schiedsrichterausbildung.] Colonel v.Zanthier

An excellent article on umpiring at maneuvers as a means of improving the training of troops. The author itemizes the various high points of umpire duties and disposition of his reports.

ORGANIZATION WAR HISTORY. HOW THE 106TH REGIMENT RELIEVED THE FRENCH.
[Truppen-Kriegsgeschichte. Wie das Regiment 106 die Franzosen ablöste.] Major General v.Wülfingen

An account of the action of units of the 106th Royal Saxon "King George" Regiment at Kemmel, just south of Ypres. The units advanced to relieve some of their hard pressed comrades in the front lines and halfway to their destination they encountered the French who had overwhelmed their comrades. The quick decision and initiative of the lieutenant commanding the relief surprised the French. The impetuousness of the German attack drove the French out and saved Kemmel Hill for the Germans who had just recently captured this dominating terrain after suffering heavy casualties from Allied artillery directed therefrom.

EMPLOYMENT OF MINES AND RESTRICTION OF MOBILITY.
[Minenverwendung und Handlungsfreiheit.] Captain Oberndorfer

A reply to Major Sieberg's article in "Militär-Wochenblatt" No. 33, "Does the Spanish War answer the question whether modern tanks or modern antitank defense weapons have superiority?"

The author cites that the employment of mines on a large scale restrict mobility of your own troops. He recalls that during the World War thousands of land mines for antitank defense were made available in the engineer depot of the Seventeenth Army, January 1918. After experimenting these were found inadequate and impractical for use. The design sought was a tank that would permit field artillery and cavalry to pass over without detonation. This type was not forthcoming.

Now twenty years of research has rewarded those nations who depend on defensive measures for their security with a suitable type.

Despite the foregoing, the author believes that even though mines are a great asset to the defense they do restrict counteroffense and counterattacks. In the war in Spain very little use has been made of tank mines and therefore this experimental field has not solved the debatable question of tanks versus tank mines.

BASIC FEATURES OF THE MILITARY-POLITICAL SITUATION OF ITALY IN THE MEDITERRANEAN.
[Grundzüge der militärpolitischen Lage Italiens im Mittelmeer.]

The author refers to Mussolini's statement that Italy can be considered an island country and that whereas the Mediterranean serves as a highway for other nations it really is the life of Italy. The lack of land boundaries, the vulnerability of attack by air and sea, the necessary secure sea communications and the influence and sphere of influence a possibility of the Mediterranean, all feature the Duce's contentions. The author then discusses these various points in turn, summarizing that under these conditions it is imperative that Italy must strive for a strong war machine capable ot ending a war in short order.

THE SPANISH WAR.
[Vom spanischen Krieg.] Colonel v.Xylander

This article covers the breakthrough to the sea of April 1938, with maps to illustrate the article.

13 May 1938

FREDERICK WILLIAM, THE GREAT ELECTOR.
[Friedrich Wilhelm, der Grosse Kurfürst.] Major General Feeser

A biography of Frederick William's life in commemoration of the 250th anniversary of his death, 6 May 1688.

NIGHT TRAINING FOR INFANTRY.
[Nachtübungen für Infanterie.] Major Treuhaupt

Night operations without question constitute the most difficult operation in the curriculum of the soldier. This phase of training affords the greatest similarity to actual warfare with its difficulties in crossing terrain ditches, wire fences, etc., with the light rockets and almost certain report that communication has been lost with adjacent and rear units.

The author covers this phase of training: night marches on and off roads, expedients such as white markings on packs, etc. He describes practical exercises for training of troops such as ammunition supply to front-line units, relief at night, night observation, night firing, etc.

AIR ATTACKS ON TROOPS AND DEFENSE AGAINST THESE ATTACKS.
[Fliegerangriffe auf Truppen und ihre Abwehr.] (III) Lieut. Colonel Greiner

An article covering the training of troops against air attacks on troops resting while on the march, troops resting in bivouac and troops in the attack.

WAR HISTORY OF TROOPS. MENTAL STRAIN AND RESPONSIBILITY OF A REGIMENTAL COMMANDER IN WAR.
[Truppen-Kriegsgeschichte. Seelische Belastung und Verantwortlichkeit des Regimentskommandeurs im Krieg.] Major Blecher

From historical examples taken from the history of the 126th Infantry Regiment from 19 July to 8 August 1915 at Hooge (east of Ypres).

REVIEW OF BOOK PRINTING IN THE ARMY.
[Vom Büchereiwesen im Heere.] Major Gieraths

An article referring to the need of military printed matter for the individual soldier.

THE FRENCH MILITARY ACADEMY.
[Die französische Kadettenanstalt.] Dr. Papajewski

A review of the French military institutions for training cadets in the French army.

CZECHOSLOVAKIAN VIEWS ON MODERN TANKS AND DEFENSE AGAINST THEM.
[Tschechische Ansichten über neuzeitliche Panzerkampfwagen und deren Abwehr.]

It has been a known fact that the Czechs have never evolved an individual training doctrine, but have followed the doctrines of their instructors, the French. In spite of this the Czechs have developed excellent technical military literature not dominated by French thought. The discussions on tanks and tank defense have been especially good. For example, in the Czech Officers' Newspaper No. 44, in the fall of 1937, the following thoughts were expressed:

The author of the article contended that the experiences in Spain would indicate that the role of the tank in modern warfare was nearing its end. The gasoline flask and determined heart of the infantryman had conquered the tank. A careful investigation reveals that the conditions under which the tanks were employed in Spain, Abyssinia and Bolivia, and which caused their failures in these places would not apply to an European war. The yardstick and directives based on the experiences of the latter phases of the World War are still applicable.

Research shows that in the World War tank attacks about 25 to 30 tanks were employed per one kilometer of front. This is a density which never was approached in Spain. This explains the reason for their failure as it permitted the highly developed antitank defense to crush the attack. Further, their inadequate armor and armament of only machine guns also contributed to their failure, especially those of the Insurgents.

The Russian type tanks employed by the Loyalists were somewhat better as they were amply provided with armor-piercing weapons. Also these tanks could not withstand the fire of the 37-mm antitank gun. The author did not predict any exceptional role for the tank gun against 3 to 10-ton tanks.

It has been suggested that painstaking training in driving these tanks and firing therefrom be given. A really efficient tank commander requires from 3 to 5 years of training, going through all the grades of duties and functions. Platoon commanders require one to two years of training. Neither side on the various fronts mentioned possessed tank commanders of this amount of experience.

In Spain tanks were never used in sufficient numbers in the units involved, nor were their attacks coordinated with the infantry attacks.

In order to avoid too great a loss in their expensive war material (the tank), the combatants permitted the infantry to precede them having the tanks then move forward at full speed to about 300 yards and open an effective fire. During all this the artillery supported the attack. The meager number of tanks employed never permitted a breakthrough to reach the hostile artillery positions. The danger of casualties to the tanks from the organized defense caused the combatants to initially employ infantry and artillery to capture the hostile position and not use their tanks until the pursuit started or to exploit a success.

The Spanish War cannot answer the question whether tanks can achieve the decisive decisions in future wars. It would be erroneous to carry over the lessons from the Spanish War to an European situation.

To be successful in a future war, tanks must be employed as follows:

(1) Employed in great numbers with a density of at least 100 tanks per kilometer, with proportionate number of accompanying weapons and artillery.

(2) Prepared to quickly replace the heavy losses in personnel and material which must be anticipated.

(3) A further development of a 20 to 30-ton type of tank, equipped with 67-mm to 100-mm gun and with a crew of 5 to 6 men.

With the above material and sufficient accompanying artillery we can expect decisive results. Not a hundred, but thousands of tanks and airplanes will be employed on a narrow front at the point where the decision is desired.

Opinions relative to antitank defense are not in accord. In the Czech forces two different opinions exist.

One group advocates many antitank weapons with the lower units such as companies, battalions and regiments, and only a few with the division and corps. The other group advocates that the antitank weapons of the regiment, division and the corps be pooled or combined in order to have a mass of them available at threatened points when called for.

As a means of active defense against tanks it is advocated that large caliber weapons such as large caliber 13-mm to 20-mm rifles, large caliber 13-mm to 20-mm machine guns and 37-mm antitank guns be used. In addition to these barrage fires can be put down by grenade throwers and the artillery.

The majority favor the issue of the large caliber rifle and machine gun to the company and battalion. Each company and battalion should receive four of each in order to have an effective weapon available at all times.

The required number of 37-mm antitank guns per battalion is calculated as follows: At a range of 375 to 620 miles an antitank gun has but 4 minutes available to counter a tank attack. In this period 28 aimed shots can be fired. Due to action of hostile weapons this is diminished to 14 shots of which half can be direct hits. Therefore an antitank gun can on an average neutralize 7 hostile tanks. This indicates that on a battalion frontage of 1,500 yards, 4 antitank weapons will suffice if not more than 30 hostile tanks are opposing them. This includes a consideration that one or two of the defensive weapons are put out of action. This estimate would provide an infantry regiment with 12 antitank guns. Some of the Czech authorities are of the opinion that 6 antitank guns per regiment would be sufficient because it would seldom occur that an entire regimental front would be subjected to a tank attack.

Fundamentally, all other passive means of antitank defense are to be utilized. All defensive positions should be selected with natural antitank terrain with natural obstacles and augmenting these with the technical obstacles such as mines, concertina wire, etc.

THE CONFLICT IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] Colonel v.Xylander

An account of the surrender of the two Japanese divisions on 7 April at Tschantschwang and the death of General Isogai and its effect on Japan. The author also discusses the double attack on Hsuitschau.

MILITARY ENGINEER

September-October 1938

THE FLOODS OF "CHINA'S SORROW." Major Todd

COASTAL WARFARE — PAST AND FUTURE. Colonel Hall

TRANSPORTATION VITAL TO NATIONAL DEFENSE. William J. Wilgus, Director, Military Railways and Deputy Director General, Transportation, A.E.F.

PLANS FOR INDUSTRIAL PREPAREDNESS. Colonel Harris, Jr.

STRATEGIC MINERAL SUPPLIES. 15. STRATEGIC AND CRITICAL MINERALS. Major Roush

November-December 1938

STRATEGIC MINERAL SUPPLIES IN CENTRAL EUROPE. Major Roush

MILITARY SURGEON

September 1938

MEDICAL UNITS IN THE NATIONAL GUARD. Major General Blanding

MANAGEMENT OF EYE WOUNDS AT THE FRONT. Colonel Fenton

November 1938

THE ROLE OF VETERINARY SERVICE IN MODERN WARFARE. Lieut.Colonel McKim

NAVAL INSTITUTE PROCEEDINGS

September 1938

THE PERENNIAL PHILIPPINE PROBLEM. Lieut.Commander Lee

ADMINISTRATION OF JUSTICE: COURTS-MARTIAL VS. CRIMINAL COURTS. Lieut.Commander Delpino

CHUNGKING TO ICHANG. Lieut.Commander Howell

EFFECTS OF AERIAL BOMBARDMENT IN CHINA. Lieutenant Coffin, Jr.

October 1938

THE INFLUENCE OF AIRCRAFT ON THE EXERCISE OF SEA COMMAND. Lieut.Commander Ramsey

THE PHILIPPINES AND THE PACIFIC. Lieutenant Eller

PIONIERE (Germany)

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

May 1938

THE ENGINEERS OF THE AUSTRO-HUNGARIAN XXIII CORPS DURING THE PIAVE OFFENSIVE, 15-24 JUNE 1918.
[Die Pioniere des österr.-ung. XXIII. Korps während der Piave-Offensive 15. bis 24. Juni 1918.] General Heppner

A detailed description of the work done by the engineers of the XXIII Corps during the last Austro-Hungarian Offensive on the Piave, 15-24 June 1918.

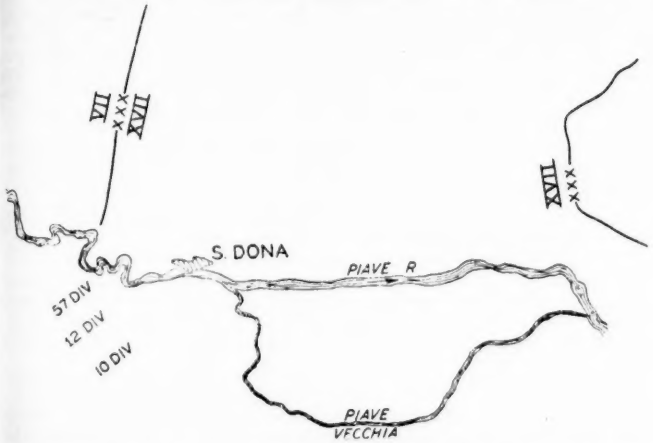
The Italian and Austro-Hungarian armies were facing each other along the Piave and the Vecchia Piave. Preparations for this offensive commenced in April, giving the troops two months of preparation for this final effort. The XXIII Corps occupied a sector of approximately 18 miles from the village of Noventa to the Adriatic, with the VII Corps on its right.

The engineer units of the XXIII Corps were as follows:

6 Sapper companies
1 Bridge company
2 Electro companies
18 Construction companies
6 Horse bridge train companies.

The mission of the engineers was to ferry the attacking (10th) division across the Piave, in two places near S. Dona, after which two ponton bridges were to be thrown across the river at S. Dona and a heavy bridge a mile

down stream from that place. As the advance progressed, a reinforced ponton bridge and a bridge of heavy steel barges were to be built, one up stream and the other down stream of S. Dona. In case of destruction of these two bridges, two ferries were to replace them. If the operations continued successfully, a heavy bridge, two-lane traffic, was to be constructed to replace the road bridge which the Italians had destroyed in their retirement.



The attack was launched on 15 June at 6:55 AM and after a 4-hour artillery preparation the passage of the Piave had been successfully accomplished. Construction of the two ponton bridges was immediately started, but the Italian artillery fire was very accurate and destroyed so many pontons that a further supply of pontons had to be brought from the rear in order to complete the bridges. The bridge northwest (up stream) of S. Dona was ready by the morning of the 16th; the southern bridge was so severely damaged by hostile artillery and aviation that it could not be maintained in operation. Two ferries replaced it, but they also had to be abandoned. On the 15th there were 96 ponton sections available, but by the 16th there were only 20 left, and even some of these were severely damaged.

Rain complicated matters on the 18th, causing a steady rise of the river. Driftwood carried down stream accumulated against the ponton bridge making it necessary to split the bridge in two in order to save the materials. Other bridges down stream were either destroyed or heavily damaged.

The VII Corps retired across the river on the 22d and the XXIII Corps completed its retirement on the night 23-24 June.

General Hepner believes that the bridge sites were well chosen. The critical time of the operations is not while the passage is being effected, but after the troops have crossed, when the hostile artillery lays down its barrage and the aviation releases its bombs in an effort to destroy the bridges and cut off the troops that have crossed the river.

The Austrians lacked long-range artillery for counterbattery work and did not have sufficient antiaircraft protection.

Thirty per cent of the bridging material and 22.5 per cent of the ponton equipment was recovered; a much heavier percentage of losses of material than had been anticipated.

Ponton bridges are very vulnerable, and wherever possible trestle bridges should be constructed instead. Sapper companies must be highly trained to be able to perform their duties as bridge construction must be carried on under enemy fire.

AUSTRIAN ENGINEERS, PAST AND PRESENT.
[Die österreichischen Pioniere in Vergangenheit und Gegenwart.] Captain Müller

The Corps of Austrian Engineers was founded by Prince Eugene of Savoy in 1717; the Sappers Corps was formed in 1760; the Miner Corps was incorporated with the Engineer Corps in 1772.

Changes in strength and organization were made during the World War. Unlike the Germans, the Austrian Engineers had no commanding engineer, they merely had an engineer adviser.

The Treaty of St. Germain restricted the Austrian army to 30,000 men. This restriction was removed in 1935, when universal service was introduced and the army strength was increased to seven divisions, one fast division and one independent brigade. Each infantry division now has an engineer battalion consisting of battalion headquarters, two engineer companies and one engineer park. The fast division has a motorized engineer company. Army troops include, among other units, a bridging battalion and the Danube River flotilla.

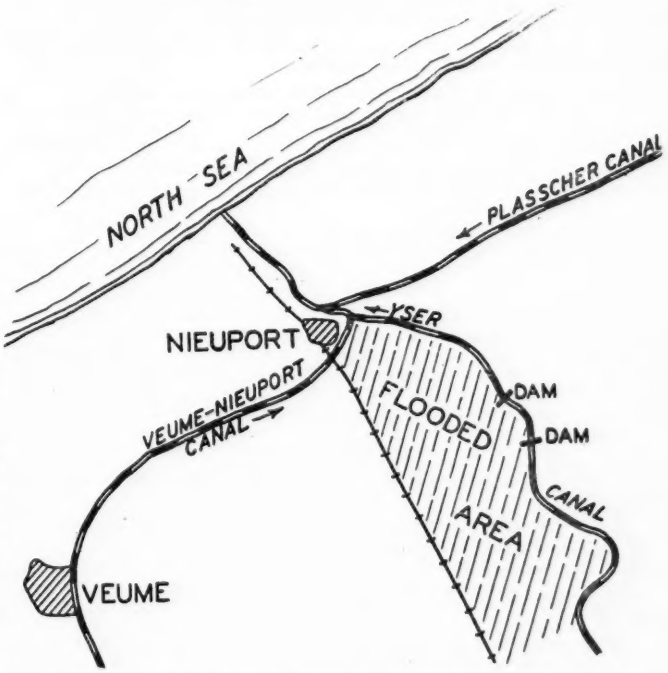
In contrast to German terminology, the term "Pionier" in Austria is restricted to units serving on the water.

GENERAL WEBER PASCHA.
[General der Infanterie Weber Pascha.] Major Günther

General Weber was a distinguished engineer officer who served under General Liman von Sanders as a member of the military mission to Turkey. Serving as a Colonel, he was in charge of the fortifications branch of the Turkish army and as such he undertook the task of strengthening the Dardanelles defenses. He estimated that the British would attack the Cape Helles end of the peninsula while Liman von Sanders thought that the Gulf of Saros would probably be their objective. Weber's estimate proved to be right and the hidden machine-gun emplacements caused heavy losses to the British landing forces. In addition the dummy batteries misled the British naval artillery.

In March 1915, General Weber was made commander of the Turkish XV Army Corps and after the termination of the Gallipoli Campaign, he was transferred to the Western Front where he held several high commands. He died in 1933.

DIKE CONSTRUCTION ON THE YSER SOUTH OF NIEUPORT IN 1917.
[Bau von Staudämmen in der Yser südlich Nieuport 1917.] Lieutenant Baumgärtel



The German attack on Nieuport in October 1917 was stopped by the Belgians who flooded a large area between the Yser and the railway to Dixmude. Through the Nieuport sluices, that controlled the water from the sea, the Allies were able to regulate the supply of water over the flooded territory.

In the summer of 1917, when the battle of Flanders began, the Germans observed that the flooded area was drying up and they deducted that a British attack was being prepared. The Germans decided to construct two dams in order to control the water flowing down the Yser, and thus keep the area between them and the British under water. These dams were constructed in the face of the British artillery gun fire and they were still standing when the Germans evacuated Belgium in 1918.

TASKS OF AN ENGINEER COMPANY IN MOBILE WARFARE.
[Aufgaben einer Pionierkompanie im Bewegungskrieg.] Major General Klingbeil

A description of some work carried out by the 2d Pionier Company, 25-28 August 1914.

DEVELOPMENT OF STEEL ARMOR OF FORTS.
[Entwicklung der Festungspanzer.] Dr. Kraus

The author traces the development of armor from the year 1860. The first German ironclads made in France and in England had armor plate protection. Later on came the "sandwich" type, where wooden packing was inserted between the two plates. In 1892, seven percent nickel was added to the steel and a few years later nickel was replaced by a chrome-nickel alloy.

In the Battle of Jutland, British 34-cm (13.6-inch) and 38-cm (15.2-inch) shells failed to penetrate the armor of German ships while some of the German 28-cm (10.2-inch) and 30.5-cm (12.2-inch) penetrated the armor of British ships.

AN ENGINEER IN THE TURKISH SERVICE.
[Als Pionier in türkischen Diensten.] Major Müller

The author was a member of the German mission consisting of 10 officers and about 20 noncommissioned officers, sent to Turkey in 1916 to recruit and organize two Turkish engineer battalions. Arrangements by the Turkish authorities were unsatisfactory and the mission was recalled the following year.

QUARTERMASTER REVIEW

September-October 1938

WINGS OVER AMERICA. Hull
PERFORMERS PRODUCE PERFORMERS. Colonel Johnson
ARMY PURCHASING. Captain Bower

RASSEGNA DI CULTURA MILITARE (Italy)

Rivista di Artiglieria e Genio

BY MAJOR E.M. BENITEZ, Coast Artillery Corps

March 1938

ANTITANK DEFENSE IN THE FRENCH AND GERMAN ARMIES.
[La difesa anticarro negli eserciti francese e tedesco.]

Two important factors greatly influence the doctrine and tactics of antitank defense in France and in Germany:

(1) The type of terrain on the Franco-German frontier.
(2) The development of mechanization in the two countries.

In both nations, antitank defense is based upon the following measures:

(1) Utilization of natural obstacles.
(2) Construction of artificial obstacles.
(3) Passive defense.
(4) Active defense (mine fields).
(5) Tank and antitank guns.

FRANCE

Antitank defense is mainly based upon water obstacles, mine fields, the 25-mm gun and other measures (tanks, 75-mm guns).

According to the author, the infantry division has 50 25-mm guns, of which 12 belong to the division antitank company, 12 to each infantry regiment (36 total), and 2 to the division reconnaissance group. The present tendency is to increase the number of regimental guns from 12 to 20.

GERMANY

The main difference between the German and French antitank defense is as follows:

(1) Germany has special units detailed for antitank defense.
(2) Larger number of antitank weapons per unit.
(3) Larger caliber of the antitank guns.

The German 37-mm antitank gun in the division is assigned to units as follows:

36 to the division antitank battalion (12 to each company)
12 to the infantry regiment
3 to the division reconnaissance group.

A total of 75 37-mm guns for the division.

The French infantry division will soon have 20 25-mm guns per regiment, which will provide about the same number of antitank guns as the German division. The question that arises, therefore, is: Is it better to have the more powerful 37-mm antitank gun firing an explosive shell than the more mobile 25-mm gun firing an armor-piercing non-explosive shell?

THE SINO-JAPANESE WAR.
[La guerra cino-giapponese.] (III) Colonel Oxilia

An account of the operations during the period July to October 1937, dealing with the advance of the Japanese everywhere on the northern front in spite of stubborn Chinese resistance.

ROADS AND MOTORS.
[Strade e motori: mentalità della motorizzazione.] (II) Lieut. Colonel Dante di Marco

This article concludes with a description of a traffic control system that will make possible the use of motor roads to greatest advantage for military purposes.

THE EVALUATION OF THE EMPIRE.
[La valorizzazione dell'Impero.] (II) Captain Lucca

Upon conclusion of the Abyssinian War, Italy commenced the development of the Italian Empire in East Africa.

Considerable amount of building work had to be undertaken; some towns like Addis Ababa, for example, had to be practically rebuilt. Slavery has been abolished, industry has been gradually developed, studies have been made to utilize the hydroelectric resources of the country and schools for Italians and for the natives have been started.

PRESENT POSSIBILITIES OF RADIO COMMUNICATION IN THE FIELD.
[Sulle possibilitià attuali dei radiocollegamenti campali.] (I) Major General Sacco

A discussion of the value of long and short waves for radio communication in the field. In tactical operations, and particularly in a war of movement, the short wave is now and probably will be in the near future, the most suitable for strategical purposes. Either the short wave or the very long wave will be mainly used.

April 1938

CHINA AND JAPAN.
[Cina e Giappone.] (I) Marshal Caviglia

On the night of 8 February 1904, the Czar of Russia, upon returning from the theater, received the following telegram from Admiral Alexeieff from the Far East: "At about midnight 8 February Japanese destroyers suddenly attacked the Russian squadron anchored at Port Arthur. The battleships Retvisan, Czarevic and the cruiser Pallada have been torpedoed." Thus Japan proceeded to bottle up the Russian fleet in the bay of Port Arthur.

The author was a military observer accredited to the Japanese army. He gives an account of the Russo-Japanese War of 1904 and discusses the rise of Japan as a world power.

STRATEGICAL STUDIES ON THE WORLD WAR.
[Studi di strategia sulla guerra mondiale.] General Ago

The German war plan in case of war against France and Russia, prepared by von Schlieffen, provided for the concentration of forces against France in order to defeat her as soon as possible before Russia could complete her mobilization. Once France had been defeated, the bulk of the German army would then fall upon Russia.

A quick decision against France was not so easy because the frontier was heavily fortified. For this reason von Schlieffen decided upon the invasion of Belgium, with the right wing advancing west of Paris so as to drive the French army towards the southeast. This bold plan depended for its success not only upon a powerful mass, but also upon a weak resistance on the part of Belgium, and a very slow Russian advance. But Belgium put up a stronger resistance and Russia mobilized much quicker than had been anticipated, while the German high command, says Ludendorff, failed to execute that grandiose maneuver with the harmony and firmness required. The failure of Italy to join the Central Powers proved to be a great handicap.

Ludendorff maintains that with a supreme command like the Ludendorff-Hindenburg combination, the correct strategy would have been to strike Russia first. The French would not have fought with enthusiasm to save Russia; war with Belgium, although a small nation, would have been avoided and there would not have been any British intervention. A great success against Russia would have kept Rumania out of the war. Even after the battle of the Marne it would have been possible to direct the main blow against Russia.

Strategy and diplomacy are closely linked. Preparations should not be so rigid as to prevent any changes.

The fortification of frontiers permits freedom of action and guarantees the integrity of the nation. It also enables the use of the bulk of the army as a powerful mass of maneuver to be used to maximum advantage at the proper time and place in order to obtain a decisive victory in the shortest time.

CONQUEST OF THE EQUATORIAL LAKES REGION.
[La conquista della regione dei laghi equatoriali.] (I) Lieut. Colonel Terragni (See sketch on opposite page.)

In January 1936 the Italians captured Neghelli, threatening Addis Ababa, lying about 300 miles to the north. The Abyssinians massed a large force to oppose the Italian advance. The terrain north of Neghelli lends itself to the defensive.

Two plans were left open to General Geloso in command of the operations:

(1) To attack and defeat the enemy on his immediate front and occupy Irgalem.
(2) Occupy Mega and Moiale, then turn to the north, attack the enemy and occupy Irgalem.

The first plan involved a bloody frontal attack and left two lines of retreat open: one to the northwest towards Sudan and the other to the south towards Kenia.

General Graziani approved the second plan, although it involved a difficult march of over 400 miles in an unknown country.

The Italian force consisted of 12,000 men, with artillery and the big problem was to supply this army with munitions, stores and fuel. Gasoline had to be provided for 750 trucks.

TERRITORIAL ANTIAIRCRAFT DEFENSE.
[Difesa controaerea territoriale.] General Guidotti

PRESENT POSSIBILITIES OF RADIO COMMUNICATION IN THE FIELD.
[Le possibilitià attuali dei radio collegamenti campali.] (II) General Sacco

Radio service may be affected by the following disturbances: (a) atmosphere; (b) industrial; (c) interference; (d) enemy.

The author discusses these disturbances and also deals with cipher messages and cryptographic machines.

Marshal Badoglio in his book, "The Ethiopian War," states the ease that he felt by learning the enemy situation and intentions deducted through radio interception. In the final conclusion of his book, Marshal Badoglio points out the necessity of lightening and coordinating the radio service in

order to leave more initiative and freedom of action to the commander. Radio should be reserved for urgent and important messages only and should be used sparingly. In the meantime it should always be on the alert for enemy messages. The watchword in radio service should be discipline.

BRIEF NOTES ON MAP MAKING.
[Brevi note in materia di carte topografiche.] (I) General d'Espinosa

As the title implies, this article discusses the recent developments in map making for military purposes.

May 1938

CHINA AND JAPAN.
[Cina e Giappone.] (II) Marshal Caviglia

During the World War Japan occupied the German colony of Tsing-Tao. In 1931 Japan, taking advantage of the economic crisis in Europe and America, seized Manchuria, where Viceroy Chian-So-Ling could not maintain peace.

Today, Manchuria is well governed and prosperous, supplying Japan with iron, coal and other raw materials. It has a population of 21 millions and an area of two million square kilometers, organized like a modern European nation with an army of 30 divisions available to Japan for war against China.

The movement that resulted in the overthrow of the Manchu dynasty in 1912 started in South China. Almost all the Chinese emigrants to America, the Philippines and Europe came from the south. The revolutionary movement was encouraged by American missionaries in China and by Chinese students in the United States. To rule a nation like China with 440 million inhabitants and a yearly increase of 5 million, requires 10 million first class officials, which no other nation but Japan can furnish.

The Far East will be in the future a great empire comprising China, Manchuria, Mongolia, Eastern Turkestan and Tibet, totalling 500 million inhabitants. This huge empire will be a problem for the white race and Australia and Oceania in particular will feel the pressure.

TACTICAL EMPLOYMENT OF THE LARGE UNITS IN THE FRENCH ARMY.
[L'impiego tattico delle grandi unità francesi.] (I) Colonel Garrone

"We Frenchmen are preparing for a particular war; war in the northeastern frontier against our most probable adversary: the German army." The words of General Altmayer outline the French mind and tactical doctrines.

The new Field Service Regulations of 1937 prescribe the employment of modern means and the use of the large motorized and mechanized units recently organized.

The principles that must guide the employment of forces in battle are:
(1) Impose our will on the enemy.
(2) Maintain our freedom of action.
(3) Economy of force.

CHARACTERISTICS OF LARGE UNITS

The French army is distributed as follows:
I — Home forces
II — Mobile force, overseas reserve
III — Overseas forces.

The Home Force consists of French troops. In peacetime there is no army corps organization.

The Mobile Force is composed of French and native troops, scattered over France.

The Overseas Force is composed of French native and foreign troops of the various French colonies.

In time of peace, the French army consists of 41 infantry divisions and 5 cavalry divisions.

The three elements which determine the decision of the commander are: the mission, means (troop, matériel and terrain), and the enemy. An estimate of these means will produce a proper decision and a plan of attack or defense.

The author discusses the question of fire and movement, and the characteristics of the various arms. Motorization and mechanization favor and accelerate movement.

A PORTUGUESE CHRONICLE OF THE EXPEDITION OF DON CRISTOFORO DE GAMA IN ABYSSINIA.
[Una cronaca portoghese sulla spedizione di don Cristoforo da Gama in Abissinia.] Prof. Naldoni-Centenari

This installment concludes the account of this expedition, the main events of which are: Don Cristoforo's victories over the Moors, the Portuguese defeat, the murder of Don Cristoforo in August 1542, the battle of Lake Tana and the return of the Portuguese to India.

ANTIAIRCRAFT DEFENSE IN MODERN ARMIES.
[La difesa controaerea degli eserciti moderni.] Lieut.Colonel Camera

The importance of aviation in modern warfare is very great as it has been shown in the Spanish Civil War, the Sino-Japanese War and the war in Abyssinia.

The infantry division, fast or motorized, has one or two 20-mm machine-gun batteries. The army corps has three batteries, which is not sufficient protection when the corps marches along several roads.

An antiaircraft gun must be heavy enough to stand the strain of an initial muzzle velocity of 2400-2700 feet per second; the length of the gun must be from 45-50 calibers, while frequent relining will be necessary. Guns must be able to fire in a 360° horizontal sector and 90° vertical elevation.

Antiaircraft defense well equipped and handled by properly trained personnel will repay with interest the efforts that the various countries are making towards its improvement.

CONQUEST OF THE EQUATORIAL LAKES REGION.
[La conquista della regione dei laghi equatoriali.] (II) Lieut. Colonel Terragni

In this issue the author describes the concentration of the expeditionary force at Neghelli and the enemy situation. The Ethiopians had a total of 7,000 men, equipped with a large number of machine guns and some antitank guns.

The advance into the Borana country and the capture of Moiale are described in detail. The occupation of Mega gave the Italians control of the road from Kemia to Addis Ababa.

THE FRENCH NAVY.
[La marina militare della Francia.] Lieut.Colonel Varanini

The French Navy will be augmented by the following units: The Dunkerque and Strasbourg of 26,500 tons each which will take five years to build, and the Richelieu and the Jean-Burt, which will not be ready before 1939.

The French Navy is behind the Italian Navy as regards rapidity of construction. Similarly, Great Britain and Germany are also well ahead of the French.

The expansion of the British Navy permits the expansion of the German Navy, which is limited by treaty to 35% of the British Navy.

"La France Militaire" points out the efficiency of the German submarines during the World War. France is also falling behind in this type of ships as the following figures show: Italy, 100; France, 85; Japan, 64; Great Britain, 54; and the United States, 51.

France, according to Colonel Varanini, has dropped from second to fourth place in the navies of Europe.

DESCRIPTION OF A TOWER FOR TRAINING PARACHUTISTS.
[Cenni descrittivi e dati relativi a una torre per addestramento paracadutisti.] Lieut.Colonel Calligaris

The length of this tower is 180 feet, constructed in sections, so that the whole structure can be taken to pieces in a relatively short time. The detailed description is illustrated by a photograph.

BRIEF NOTES ON TOPOGRAHIC MAPS.
[Brevi note in materia di carte topografiche.] (II) General d'Espinosa

Conclusion of the article on maps and their requirements from a gunner's point of view.

June 1938

ATTACK WITH CHEMICAL GASES AND DEFENSE AGAINST THEM.
[Gli aggressivi chimici ed i mezzi di difesa contro di essi.] Nicola Parravano

Chemical warfare, started on 22 April 1915 when the Germans used it in the Ypres sector against the British and French troops putting 15,000 soldiers out of action. The author traces the development of chemical warfare to the present day, stating that a problem was presented for the chemist and the doctor to solve. Gas masks were devised and improved in order to counteract the effect of chemical gases.

FACTS ON THE SPANISH WAR.
[Precisazioni sulla guerra di Spagna.]

According to the author many erroneous statements have been made concerning the Spanish Civil War. The book by Klotz entitled, "Les lecons militaires de la guerre civile en Espagne," contains much anti-Fascist propaganda.

The Battle of Guadalajara has been misrepresented. Similarly, the statement by Klotz that the Russian heavy tank can move faster than the Italian light Fiat Ansaldo is also in error.

The author discusses the employment of tanks in Spain and asserts that tanks have not been used on a sufficiently large scale to justify any conclusions as to their value in future warfare.

HOW HUNGARY FIGHTS.
[Come combatte la Honvéd.] Colonel Mattioli

The new Hungarian tactical doctrine is decidedly offensive and dynamic and in favor of a war of maneuver.

THE MOTORIZED DIVISION IN A DEFENSIVE SITUATION.
[La divisione motorizzata nella manovra difensiva.] Colonel Trabucchi and Lieut.Colonel Quercia

The author studies a concrete example of a motorized division in a defensive maneuver. This division consists of two infantry regiments, one motorcycle battalion, one tank battalion, one machine-gun battalion, a 47-mm company, a regiment of field artillery and service troops.

CONQUEST OF THE EQUATORIAL LAKES REGION.
[La conquista della regione dei laghi equatoriali.] (III) Lieut. Colonel Terragni

After the conquest of Moiale and Mega, the next objective was Irgalem, about 200 miles from Mega. Agheremariam was occupied on 26 July and on 16 August the Italian reconnoitering force came in contact with the enemy at Giabassire (Strong Mountain), about 15 miles north of Agheremariam. While the Italians were compelled to fall back, the Abyssinians sustained heavy losses in this battle.

SEARCHLIGHTS IN ANTIAIRCRAFT DEFENSE.
[I protettori nella difesa antiaerea.] Major Martinez

Are searchlights in antiaircraft defense valuable, useless or dangerous? This question has been greatly debated.

Searchlights disclose the approximate location of the vulnerable points; however, hostile aviators know the approximate location of their objectives anyway.

The illuminating power of the searchlight has been gradually increasing. At the beginning of the World War, a normal searchlight was one of 90-cm (36-inch), with a 100-ampere arc, giving a beam of 60,000,000 candle-power. By 1918 there were a large number of 90-cm searchlights with a 150-ampere arc and a beam of 250,000,000 candle-power. The latest type of searchlight is one of 120-cm (48-inch) with a beam of over 500,000,000 candle-power, with a range three times that of the World War lights.

The cost of one of the latest types of searchlights varies from 300 to 500 thousand francs, depending upon whether or not the sound locator and other equipment is included. This amount is very low compared with the cost of ammunition expended in an air raid.

The author shows the advantages to be gained by the use of searchlights in antiaircraft defense.

EXTRANEOUS SUBSTANCES THAT CAUSE DETERIORATION OF CELLULOSE POWDERS.
[Le inclusioni estrancee quali agenti di decomposizione delle polveri infumi.] Mario Tonegutti, Chemical Inspector General of the Navy

On 8 September 1904 an explosion occurred on the Italian battleship, Marco Polo, anchored in the Bay of Chemulpo (Korea). An investigation was conducted and through a series of experiments with various substances, the conclusions arrived at were that pyrites are the most dangerous impurities that can be introduced into smokeless powders. Zinc is also harmful. No definite findings were obtained as regards iron and aluminum.

ROAD CONSTRUCTION BY MILITARY ENGINEERS IN ERITREA (Abyssinian Campaign).
[Attività stradale del genio in A.O. (Eritrea).] Captain Balzac

An account of the road construction carried out by the engineers in Eritrea during the Abyssinian campaign.

On account of climatic conditions, the efficiency of the Italian laborer was reduced to 40 per cent; native laborers had only one-quarter of the efficiency of the Italian workers.

Many difficulties had to be overcome in the construction of roads, particularly the shortage of supplies, the intense heat and the trying climate.

The cost of construction varied from 500 to 900 lires per lineal meter ($50,000 to $90,000 per mile). All materials such as iron, steel, timber, asphalt and cement had to be imported paying sea freight, Suez Canal dues and the cost of transportation to the places where they were to be used.

REVUE DE L'ARMEE DE L'AIR (France)

BY COLONEL L.H. BRERETON, Air Corps

May 1938

THE ORGANIC ASSIGNMENT OF OBSERVATION AVIATION.
[La dotation organique en Aviation de coopération. — Editorial.]

The necessity of permanent air staffs in all echelons from the division to the army is stressed, whether or not organic aviation is assigned, to include artillery groupments and large tank units. It should be the function of such staffs to insure the efficient liaison of the supporting observation aviation with the ground forces.

The actual employment of close supporting observation is becoming more and more mechanical and impersonal. Personal contact, as between the individual observer cooperating with artillery, and the commander of the supported unit is not essential. What is essential is that a staff organization is provided to insure efficient liaison and coordination, and to analyze requirements.

ARTILLERY REQUIREMENTS FOR AIR OBSERVATION.
[Les besoins de l'Artillerie en Aviation de coopération.] General Dumas

A discussion, from the viewpoint of an artilleryman, of the desirability of organic observation aviation for artillery units.

HOW TO INCREASE THE EFFICIENCY OF VISUAL RECONNAISSANCE.
[Quelques réflexions sur l'observation aérienna du champ de bataille.] Major Fichot

The efficiency of visual reconnaissance can be increased greatly by proficiency in oblique observation, both visual and photographic.

Many of the objectives in the combat zone can be seen as well at a distance as at close range; for example, enemy batteries in action, the point of impact of a friendly salvo.

Furthermore, the majority of objectives seek concealment at the overhead approach of reconnaissance aircraft, but may be seen and definitely located from oblique angles, with proper training.

The field of observation is enlarged greatly. Definite information can be obtained of areas protected by antiaircraft artillery and aircraft. In a war of movement efficient oblique observation allows successful artillery cooperation, under such adverse conditions as:

Operating over unfamiliar terrain; with small scale maps; an absence of reference points which are shown on map; periods of low ceiling; hostile antiaircraft and aircraft activity.

SINGLE-SEATERS FOR AIR OBSERVATION.
[Le monoplace comme appareil de coopération.] Captain Garsonnin

The author discusses the high speed single place monoplane for observation equipment, in view of the great advantage in combat of pursuit aviation, particularly when armed with large calibre machine guns or cannon. Air observation can best be guaranteed by equipment similar in its characteristics of speed and maneuverability. Present types of multiplace observation airplanes, inferior in speed and lacking adequate defensive power are at a dangerous disadvantage, particularly at times when their services are most essential to the ground command, during the first days of war, and in combat zones when it is absolutely essential to penetrate the enemy lines in face of concentrated pursuit opposition.

June 1938

NOTES ON THE ORGANIZATION OF THE AIR SERVICE PRIOR TO 1914.
[Notes et souvenirs sur l'Aviation militaire avant 1914.] Lieut. Colonel Bellenger

An interesting review of the initial organization of the observation air service in the French Army. It is of particular interest to note that the organization foreseen for cooperation with the armies does not differ fundamentally from that actually in existence.

July 1938

THE MILITARY POWER OF THE NATION AND DEFENSIVE POWER AGAINST SURPRISE ATTACK.
[La force nationale et la résistance à l'agression de surprise.] Henri Bouché

The author considers that the military power of France resolves itself into two capabilities; namely, the capacity to resist armed aggression, and the capacity to intervene in a European war to fulfill her obligations. He deduces some of the economic and social results which are possible by a continuation of dividing the military effort between these two elements of the military power of the nation, in the competitive armament race now progressing between nations.

The author believes that by a change in the conception of what constitutes the necessary defensive effort of the nation against attack, that the country may be freed to a considerable extent from this overwhelming burden of competitive armament. As a result, the real power of the nation, that is its economic wealth and social health, will be increased, and will provide the necessary reserve of national power to be used in emergency.

The author envisages defense of the country from air attack to be accomplished to a considerable extent by decentralization and dispersion of industry to include its reorganization and partition into small dispersed units; and the eventual elimination of large congested urban centres of industrial population.

REVUE D'ARTILLERIE (France)

BY LIEUTENANT COLONEL B.R. LEGGE, Infantry

December 1937

THE UNKNOWN TREASURE OF RECORDS.
[Le trésor inconnu des archives.] Lieut.Colonel Filloux

Original and new ideas developed by Colonel Filloux for recording ballistic data by modern methods of classification.

MOTORIZATION OF ARTILLERY.
[Motorisation de l'artillerie.] (I) Captain Duvenac

A discussion of the advantages of wheel versus tractor-drawn motorized artillery with some interesting illustrations.

THE 31ST AUTOMOBILE SHOW (PARIS).
[Le XXXIe Salon de l'Automobile.] Captain Libman

PORTABLE AUTOMATIC FIRING DATA TABLE.
[Table de tir automatique portative.] Lieutenant Mauvais

A SIMPLE DEVICE FOR ORIENTING ALL PIECES IN DIRECTION.
[Appareil simple permettant de mettre en direction tous les canons.] Lieutenant Lysensoone

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MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Organization: United States: Organization and armament of army.
Armament:

United States: Corps gun 119.4-mm; howitzer 155-mm.
Sweden: Guns and howitzers — Bofors 10.5-cm and 15-cm.
Czechoslovakia: 305-mm howitzer.

January 1938

THE FIRE OF BATTERIES AGAINST MECHANIZED VEHICLES.
[Le tir des batteries contre les engins mécaniques.] Lieut.Colonel Nôtre

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MOTORIZATION OF ARTILLERY. WHEEL VERSUS TRACK LAYING VEHICLES.
[Motorisation de l'artillerie. Tracteurs à roues ou tracteurs à chenilles?] (Conclusion) Captain Duvignac

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OBSERVATIONS ON THE EMPLOYMENT OF ITALIAN ARTILLERY DURING THE ETHIOPIAN CAMPAIGN.
[Note sur l'emploi de l'artillerie italienne au cours de la campagne d'Ethiopie.] Captain Ailleret

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THE PERSPECTIVE METHOD. OBSERVATIONS ON THE SUBJECT OF THE DETERMINATION OF TANGENTS.
[Le plan perspectif. Note au sujet de la détermination des tangentes.] Chef d'Escadron Duval

PROTECTION Z (GAS PROTECTION). THE NEW COMMON GERMAN GAS MASK.
[Protection Z. Le nouveau masque populaire allemend.] Lieut. Colonel Grenouillet

The VM 37, or Peoples Mask, Model 1937, is for the use of the civil population. It weighs less than 300 grams, comes in three sizes and offers protection against all known gases for a relatively short period. Its cost is five marks.

This article deals also with two other types of masks for the civil population engaged in active defense measures, such as organized antiaircraft defense.

The VM 37 or Volksmasks, Model 1937, was produced under the direction of General Goering, German Air Minister.

MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Organization:

United States coast defenses: New antitank 37-mm gun.
Rumania: organization of the army.
Czechoslovakia: Skoda howitzer 15-cm, Model 1925; antiaircraft machine gun, Model 1935.

Automobiles and tanks:

Germany: New armored car.
Great Britain: Mobile section for defense of line of communications.
Austria: Field artillery tractors.
United States: Prime movers for 155-mm gun; New cavalry combat car; Cavalry armored car "T 7."
Poland: Fast tank.
Czechoslovakia: New combat car; Tatra Truck, 6-ton, 6-wheel, type 24.
Soviet Russia: Artillery School.

February 1938

THE ORGANIZATION OF GERMAN MOUNTAIN ARTILLERY DURING THE WORLD WAR.
[L'organisation de l'artillerie de montagne allemande pendant la Grande Guerre.]

OBSERVATIONS ON SOUND PHENOMENA CAUSED BY THE FLIGHT OF PROJECTILES.
[Note sur les phénoménes sonores causés par le mouvement des projectiles.] (I) Lieut.Colonel Camps

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THE APPLICATION OF THE PERSPECTIVE PLAN.
[Pratique du plan perspectif.] Captain Blanquefort

MILITARY DOGS.
[Les chiens militaires.]

An interesting article on the military use of dogs, tracing their employment from an historical background through the World War and commenting on their application to warfare of today.

MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Armament:

Holland: Composition and armament of artillery.
Austria: Automatic antiaircraft cannon, 4-cm, Model 1936.
United States: Portable mortar 6:05-cm.
Italy: New Breda machine gun, Model 1936.
Germany: Antitank defense.

Motorization:

United States: Machine-gun tractors.
Japan: Light transport automobiles.

March 1938

OBSERVATION ON THE NEW ARTILLERY REGULATIONS OF THE ITALIAN ARMY.
[Note au sujet du nouveau réglement d'emploi de l'artillerie italienne.]

OBSERVATIONS ON SOUND PHENOMENA CAUSED BY THE FLIGHT OF PROJECTILES.
[Note sur les phénoménes sonores causés par le mouvement des projectiles.] (II) Lieut.Colonel Camps

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STRANGE CANNON.
[Les canons étranges.] Captain Duvignac

A resumé of strange and fantastic inventions in the field of artillery.

GRAPHIC METHOD OF ORIENTATION BY SIGHTING ON THREE POINTS.
[Procédé graphique d'orientation par visées sur trois points.] Lieutenant Lecerf

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MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Organization:

Great Britain: Divisions of antiaircraft defense.
Egypt: Composition of the army.
United States: The status of field artillery.
Switzerland: Reorganization of territorial troops.

Armament:

Germany: Antitank guns.
Great Britain: Coast artillery guns 23.4-cm.
United States: Antiaircraft guns; 20.3-cm howitzers.
Sweden: Bofors 7.5-cm light field piece.

Air service:

The employment of observation balloons at night.
Italy: New organization of air service.

April 1938

THE TRANSPORTATION OF MUNITIONS TO THE ARMIES.
[Le transport des munitions aux armées.] Colonel Thierry

OBSERVATIONS ON SOUND PHENOMENA WHICH ACCOMPANY THE FLIGHT OF PROJECTILES.
[Note sur les phénoménes sonores qui accompagnent le mouvement des projectiles.] (III) Lieut.Colonel Camps

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APPARATUS FOR FIRING WITH REDUCED CHARGES (TAYEAU SYSTEM) ADAPTED TO THE 155-MM HOWITZER MODEL 1915-1917.
[Appareil de tir réduit (systéme Tayeau) adapté au 155 court mod. 1.915 et 1.917.] Captain Guichard

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TOPOGRAPHICAL METHODS OF THE FLASH AND SOUND RANGING SECTION.
[Topographie de la section de réglage par coups fusants hauts.] Lieutenant Bonnet

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MISCELLANEOUS INFORMATION.
[Renseignements divers.]

The new American division in the process of testing, and its artillery.

Organization:

Hungary: Horse-drawn machine-gun companies.
Switzerland: Motorized units.

Armament:

Germany: Accompanying matériel; Automobile production from 1932-1936.
Italy: Ammonia as a motor fuel; Portable motor power unit.

May 1938

OBSERVATIONS ON SOUND PHENOMENA CAUSED BY THE FLIGHT OF PROJECTILES.
[Note sur les phénoménes sonores causés par le mouvement des projectiles.] (Conclusion) Lieut.Colonel Camps

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AERIAL PHOTOGRAPHY AND ITS RECENT PROGRESS.
[La photographie aérienne et ses récents progrés.] Lieutenant Bertin

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THE USE OF THE UNIVERSAL PROTRACTOR BY THE FLASH AND SOUND RANGING SECTION.
[Utilisation du rapporteur universel par la section de réglage par coups fusants hauts (modèle 1924).] Lieutenant Menestrier

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CONSIDERATIONS ON MAINTENANCE AND CONSERVATION OF ARTILLERY MATÉRIEL.
[Considérations sur l'entretien et la conservation des matériels d'artillerie.] Chef d'Escadron Ripaud

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MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Organization:

Albania: Organization of the army.
Switzerland: Organization of the artillery.

Armament:

Mountain guns.
Japan: Manufacture of armament; Chemical warfare.

Motorization:

United States: March maneuver of a motorized division.
Italy: The military automobile service in Somaliland.
Soviet Russia: Motorization in the army.

June 1938

THE NEEDS OF ARTILLERY IN COOPERATIVE AVIATION.
[Les besoins de l'artillerie en aviation de coopération.] General Dumas

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OBSERVATIONS ON THE SURVEY OF THE BASE P_1 P_2 OF A SECTION S.O.M.
[Note sur le relèvement de la base P_1 P_2 d'une section S.O.M.] Chef d'escadron Bourquard

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SURVEY METHODS WHEN THE BASE IS KNOWN.
[Méthode de relèvement valable quad la base est connue.] Lieutenant Dubost

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CONSIDERATIONS ON A UNIVERSAL PROTRACTOR AND PLANIMETER.
[Considérations sur un rapporteur universel et planimétrique.] Captain Caumartin

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MINIATURE RANGE.
[Champs de tir réduit.] Captain Schram

MISCELLANEOUS INFORMATION.
[Renseignements divers.]

Organization and armament:

Great Britain: Organization of armored vehicles and cavalry.
Czechoslovakia: Organization and armament of artillery.
Germany: 37-mm antiaircraft gun.
Rumania: New guns and howitzers.
Yugoslavia: Armament of 155-mm long batteries.

Motorization:

Germany: Armored car (6-wheel).
Czechoslovakia: New reconnaissance car.
Great Britain: Bridge equipment.

Aviation:

Great Britain: Development of aviation; Hafner giroplane.
Japan: Organization of aviation.
United States: Apparatus for detecting the approach of planes.

REVUE DE CAVALERIE (France)

BY MAJOR L.K. TRUSCOTT, JR., Cavalry

May-June 1938

THE 3D HUSSARS.
[Le 3e de Hussards.]

A brief monograph on the history of the 3d Hussars, one of the oldest cavalry regiments in the French Army.

A MOTORIZED RECONNAISSANCE GROUP IN THE GRAND MANEUVERS OF THE WEST IN 1937.
[Un groupe de reconnaissance motorisé aux grandes manoeuvres de l'Ouest en 1937.] Major de Langle de Cary

(See digest, page 40.)

A PERIOD OF HISTORY. THE BREEDING ESTABLISHMENT DU PIN (BORCULO).
[Un point d'histoire, le Haras du Pin (Borculo).] Gendry

An interesting article tracing the history of the breeding establishment of Borculo in Holland during the Napoleonic period and its director, M. van Hoorick. From this establishment came the name of a branch of the establishment at Pin.

AUTOMATIC CHANGE OF SPEED.
[Changement de vitesse automatique.] Captain Chagette

A discussion of automatic gear shifts.

ALBUHERA OR ALBUFERA?
[Albuhera ou Albufera?]

Brief accounts of two battles fought by French armies in widely separated parts of Spain during the year 1811, concerning which there is some

confusion on account of similarity of names, different forms of spelling, and confusion resulting from dates.

SEAT OF YESTERDAY AND SEAT OF TOMORROW.
[Monte d'hier et monte de demain.] Colonel X . . .
An illustrated humorous letter satirizing the modern equitation.

July-August 1938

GERMAN TACTICAL EXERCISE.
[Thème tactique allemand.] Commandant Z . . .
Concrete examples of the employment of a reinforced cavalry regiment.

FROM THE ATLANTIC TO THE NIGER BY MOTORCYCLE.
[De l'Atlantique au Niger en motocylette.] Captain Couet
The author describes a trip by motorcycle and sidecar from the Atlantic to the Niger. The first part of the article describes the general nature of the country traversed; the second part describes the matériel utilized for the journey; the third part outlines suggestions for a motorcycle race or test traversing France and French colonial Africa.

THE ASCENDANT CAVALRYMAN. THE BOLD ADVANCE ON LEIPZIG.
[L'ascendant cavalier. La pointe sur Leipzig (12-13 octobre 1806).] By X . . .
The author describes two incidents in which detachments of cavalry, one about 50 men, the other about 100 men, by boldness surprised and captured a city of about 60,000 population, holding it for some hours. The author thinks that the principal strength of cavalry remains and will always remain in the ascendancy "that it will know how to impose on the enemy. Tactical progress, accomplished perfections in armament will not change it. This ascendancy should be acquired by all cavalry, mounted or mechanized, at the beginning of a campaign and preserved at all costs; it will compensate for eventual inferiority in numbers and matériel. It is the essential factor of success."

PRACTICAL TOPOGRAPHY.
[Un peu de topographie pratique.] By H.R.
A brief discussion of practical map reading.

THE "RESERVIST" HORSE.
[Le Cheval "Réserviste."] Lieutenant des Lauriers
A discussion of practical difficulties encountered in use of requisitioned horses during the World War, and suggestions for improvement in methods of utilizing them in future.

NIGHT OPERATION OF TASSENFELT, 1 JULY 1923.
[Opération de nuit du Tassenfelt le 1er juillet 1923.] Chef d'escadrons Brugnoni
An account of a night operation for capturing some heights overlooking a captured post. The force detailed consisted of a mobile group composed of a squadron of cavalry, three battalions of infantry, a battery ot artillery. The cavalry squadron, as advance guard, was to progress mounted as far as possible, then proceed dismounted; surprise by rapidity. The heights being lightly held, and the squadron obtaining surprise by rapid movement, the advance guard captured the heights.
The article, written by the commander of the squadron, gives details of orders and execution, and is illustrated by a panoramic sketch.

HORSE PURCHASING COMMITTEE OF SAINT-GERMAIN-EN-LAYE.
[Comité d'achat de chevaux de Saint-Germain-en-Laye.]
A description of the remount purchasing area for the north and east of France, breeds of horses encountered in the area, the existing situation as concerns military horses, and concludes with a brief discussion of factors affecting prices.

REVUE D'INFANTERIE (France)

BY MAJOR R.G. TINDALL, Infantry

April 1938

THE ARMY AND ITS BENEFITS TO SOCIETY.
[L'Armée, bienfait social.] General Dufieux, and Captain Poumeyrol
A treatise on the training of the officer candidate and his social role.

FORCING A CROSSING OF A WATER OBSTACLE.
[Passage de vive force d'un obstacle eau.] General Loizeau
(See digest, page 38.)

THREE PROBLEMS ON MACHINE-GUN MASKED FIRE.
[Trois problèmes de tir masqué de la mitrailleuse.] Captain Franceschi

EXTRACTS FROM A DIARY: VERDUN 1916.
[Extraits d'un carnet de route: Verdun 1916.] Major Perlier

May 1938

DEEP BLUE FACING. VIOLET PIPING.
[Ecusson bleu foncé. Soutache violette.] Lieut.Colonel Gallini
An account of the service in the World War of the 1st Light Cavalry, which served considerable time dismounted and now has been revived as the armored-car regiment.

THE 60-MM MORTAR AND THE MACHINE GUN ACCOMPANYING MISSION.
[Le mortier de 60 et la "mission d'accompagnement" des mitrailleuses.]

CONSTRUCTION AND UTILIZATION OF A SMOKE BOMB RANGE FOR 81-MM MORTARS.
[Construction et utilisation d'un champ de tir fictif pour mortiers de 81.] Captain Chérasse

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DEFENSIVE COMBAT IN POSITION WARFARE ACCORDING TO LUDENDORFF.
[Le combat défensif dans la guerre de position, d'après Ludendorff.] Major Gervaise
The author analyzes Ludendorff's prescriptions of the period 1916-1918 and concludes that the following are the essence of Ludendorff's ideas: depth, invisibility, mobility. Invisibility was sought by dispersion and camouflage and also by selection of positions such that they were difficult of observation from the position of the attacker (considerable use of the reverse slope). All of the ideas with slight variations of application retain their importance today.

REVUE MILITAIRE GENERALE (France)

BY MAJOR R.G. TINDALL, Infantry

April 1938

THE WAR OF RUMANIAN NATIONAL UNITY.
[La Guerre de l'unité nationale roumaine.] General Constandaché
An account of Rumanian operations in the war including the battle of Bucharest. It is accompanied by several sketches and furnishes interesting details upon the audacious attempt of the Rumanian command to restore the situation following defeats in the mountain region.

THE SPANISH WAR: TACTICS AND TECHNIQUE OF THE AIR FORCES.
[La guerre d'Espagne. Technique et tactique des forces de l'air.] General Armengaud

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AUTOCRACY.
[L'Autarcie.] M. Rougeron
A discussion of European economic situation with the conclusion that all agricultural, industrial, merchant marine, colonial and public works questions should also be considered from the military viewpoint in the present situation in Europe.

THE JAPANESE ARMY AND THE CHINESE THEATER OF OPERATIONS.
[L'armée japonaise et le théâtre d'operations chinois.] Captain Sereau
A review of the conditions of the present fighting in China. The author concludes that the Japanese would do well not to try to push forward much farther, but adds that the excitement of success and events are often stronger than the will of men.

May 1938

TO IMPROVE OUR AVIATION.
[Pour relever notre aviation.] General Armengaud
French aviation is not up to the country's needs and is not as efficient as the army. The aviation is insufficient in quantity for the German aviation seems to be three times as strong and each day the ratio grows more and more favorable to Germany. Moreover the quality of French aviation is not up to that of other countries.
The Spanish War has shown that it is not necessary in order to conquer in the air to be many times as strong as the adversary as is the case in ground operations and France cannot admit any notable inferiority of her aviation with respect to Germany. Something must be done at once.
General Armengaud suggests that the first measures of industrial mobilization be put into effect; that the number of workmen in aircraft factories must be tripled and the number of first line planes raised from 1,500, the present program, to 3,000.
The matter of personnel presents a great difficulty. General Armengaud suggests that the army take over cooperation aviation, that is, reconnaissance and observation aviation. At present French aviation is a third army. He believes that army officers, particularly those qualified as observers, can be trained as pilots and observers much more rapidly than civilians. Thus missions such as the infantry mission, the artillery mission and reconnais-

sance missions would be carried out by the army's own planes. Such an aviation can only play its role well if it is in perfect liaison with the command, with the infantry and the artillery. This spiritual liaison will have a stronger basis if the pilots and observers originally formed part of a ground arm.

This would increase the number of personnel and permit a rapid expansion of the air force by freeing in a short time numerous air army personnel now detailed for cooperation with the army.

THE MARNE CRISIS.
[La crise de la Marne.] Lieut.Colonel Malcor

An analysis of the action of German GHQ and the First and Second Army commanders during the critical period of the Battle of the Marne, as indicated by German official accounts. Lieut.Colonel Malcor points out that the World War clearly shows the critical situation of the German forces toward the end of the battle and then quite illogically and contrary to its own previous statements attempts to show that the German forces retreated at the moment the issue was about to be decided in their favor. Lieutenant Colonel Malcor quotes numerous examples of this inconsistency and failure to draw logical conclusions from exact premises.

He pays tribute to the splendid fighting ability of the German troops and states that what the German official accounts could have emphasized was the fact that the Allies, after checking the German advance at the Marne were unable to fully utilize the exceptional opportunities which were offered them on 6, 7, 8 and 9 September and that if they had the advantage, it was only because of the eternal law to the effect that the victor is he who makes one mistake less than his adversary.

In closing he pays tribute to the action of Joffre, the French commander, whose will brought about a strategic triumph for the Allies despite an incontestable tactical superiority of the German troops at the time.

THE WORLD'S OIL POLITICS.
[La politique mondiale du pétrole.] Captain Grandclément

A survey of the oil situation with the conclusion that France must take far-reaching steps to insure her oil supply.

THE FORESTS OF ILE-DE-FRANCE.
[Les forêts de l'île de France.] Captain Thoumin

A military geographical study of the region which includes Paris. The author concludes that the alternating forests and denuded areas offer excellent assembly zones in rear of a battle front and a favorable zone for defensive action in case an invader should deeply penetrate French soil.

June 1938

BY MAJOR T.R. PHILLIPS, Coast Artillery Corps

THE DIRECTION OF THE REAR DURING THE WAR OF 1914-1918.
[La Direction de l'arrière pendant la guerre de 1914-1918.] General Ragueneau

General Ragueneau reviews the recently published volume of the French Official History of the service of supply. Some of the figures quoted give an idea of the extent of their operations.

The railway service not only maintained the supply of all the French and allied armies but constructed 4,350 miles of new lines as well as many bridges, warehouses, etc.

The automobile service was equipped with 124 sections of motor transport at the outset of the war and had 815 sections in April, 1918. During the first month of the Verdun operations, from 22 February to 22 March 1916, it transported 47,700 tons of matériel, an average of 1,540 tons a day, and 273,000 men, an average of 9,100 a day. Between 5 July and 10 December 1916, on the Somme front, the Regulating Commission of Longueau transported 371,000 tons of matériel and 2,064,000 men. During the period between 12 July and 5 August 1918, in preparation for the offensive battles on the Soissons, Chateau-Thierry and Champagne fronts, 62 divisions were transported by automobile.

In 1916, for the operations at Verdun between 21 February and 1 July, 12,700,000 light artillery shells, 4,500,000 heavy artillery shells and 103,000,000 small-arms cartridges were delivered. The munitions supplied from May to October, 1916, for the Somme operations were superior to these figures.

The personnel reached the figure of 7,600 officers and 353,000 men, not including those in the railway service.

According to the reviewer, the principles of supply developed prior to the war were followed with but slight modification and worked excellently. Supplies were echeloned in depth to prevent the need for heavy movement of supplies in forward areas in case of movement. The General Staff personnel dealing with the Service of the Rear amounted to 29 at the commencement of the war and was increased to 61 in the month of September, 1916. It remained at about this figure for the rest of the war. This compares with 300 officers used by both the British and German armies for similar duties.

UNIFIED COMMAND AND A SINGLE MINISTRY OF NATIONAL DEFENSE.
[Commandement unique et ministère unique de Défense nationale.] M.J. Le Clère

A discussion of the need for centralized direction of the economic and financial features of military preparation and the need for such unity in war. An example of the conflict of needs between the three services is indicated by a quotation from a debate in the Chamber of Deputies as follows:

"With a billion francs one can buy a cruiser, or five hundred bombardment airplanes, or a thousand tanks.

"The question I should like to know is whether we need most a cruiser, five hundred airplanes, or a thousand tanks."

No answer is supplied when one is told that all are needed, for no matter how great one's resources are they are always insufficient and there is always a need to choose between demands. The problem of establishing an order of priority in the allocation of material and human resource is both military and political. From an economic point of view there is considerable overlapping between the different services in their establishments. No two follow the same rules in presentation of their budget or in accounting. Different services buy identical matériel at different prices.

In spite of the steps taken in France to unify the National Defense services, much remains to be done before this is accomplished. One judges from M. Le Clère that little more progress has been made in France in this respect than in the United States, in spite of the fact that they have a Ministry of National Defense.

THE ABYSSINIAN WAR.
[La guerre avec les Abyssins.] General Rouquerol

Ample information is available on the organization and conduct of the Abyssinian campaign from the Italian point of view. Nothing exists on the other side. This lack gives special interest to the memoirs of a former Russian officer, Colonel Konovaloff, who participated on the Abyssinian side on the north front. He appears to have been the sole white with the Abyssinian troops in the operations. Colonel Konovaloff had lived in Abyssinia for ten years and in 1935 was employed in the service of Imperial Public Works.

It was the hope of the Negus that the Eritreans would revolt against the Italians and an active campaign of propaganda was conducted for this purpose. Its only result was a few hundred recruits, most of whom deserted as soon as they received the enlistment bonus. Ras Seyoum, in the north, refused to regard the orders of the Negus as binding. To him they were only suggestions. He could not understand why he had been sent a military counselor. He considered that he was entirely capable of directing the operations. Not knowing how to read a map, he sent those forwarded to him to Ras Cassa, saying: "Ras Cassa spends hours looking at maps; send them to him." He considered European military instruction a mania with the emperor, useless for the Ethiopian warrior, whom he regarded as the best soldier in the world.

In August, 1935, the northern front was held by from 20,000 to 25,000 men spread in unconnected groups along 110 miles of frontier. The Chiefs at Macalle and Adigrat were at the same time cousins and rivals of Ras Seyoum. A few trenches were constructed haphazard, useless and without fields of fire. The armaments were diverse. The leaders did not know how many men they had in their bands.

After a small experience of the effect of aerial bombardment, on 4 October, Ras Seyoum moved his headquarters into a cave and from that time on moved from one cavern to another. At the start it was common to hear the Abyssinian say: "Airplanes, artillery, tanks are only playthings; it is the hand-to-hand fighting with the sword that counts." But the first contact with the effects of aviation and artillery caused an impression of impotence that seems to have paralyzed Ras Sevoum.

The Ethiopians showed a profound ignorance of their adversaries. They considered pillage the supreme object of war. The successful warrior despoiled his enemy and returned to camp. No leader had the power to retain his men on the field after a success or to stop him at a second position after failure.

Haile Selassie attempted to have Ras Seyoum fight guerrilla war. But the latter answered that he was too old (sixty years) to become the leader of a band of brigands. According to Colonel Konovaloff, the Ethiopian population did not lend itself to guerrilla war. Abyssinia is an assemblage of sixteen races, many of whom cannot understand the others' language. These tribes are often at war with each other. Irregulars acting as partisans could not count on the aid of the population, rather they had to beware of its hostility. In his precipitate retreat Ras Seyoum abandoned his depots of food and munitions along the frontier. From then on he lived off the country. The passage of his troops was worse than a locust infestation and left the inhabitants exasperated against the soldiers. Brigandage rapidly became common over all the country.

The Abyssinian warrior went to battle, holding in one hand a shield of hippopotamus skin, decorated with silver, and in the other a late model Mauser. The Negus wished to organize his country on the European model, but lacked the authority to do it. The ruling class of Ethiopia, a sort of medieval aristocracy, remained ignorant, but by the right of birth exercised all military command in war. The warriors were courageous and sought hand-to-hand combat. The leaders of all grades, incapable of foreseeing and organizing a military operation, were almost invariably inferior to their mission. A slow retreat from position to position might have delayed the outcome of the war, but the Abyssinians were incapable of the unified action needed to make the only practicable defense against the well-organized Italian invasion.

NOTES ON INFANTRY.
[Notes sur l'infanterie.] Lieut.Colonel Lancon

Colonel Lancon wishes to develop an elite infantry, with high morale, lightly and judiciously equipped, and organized to enable it to act by fire and movement. This, he believes, is the indispensable foundation of all tactical combinations.

EUROPEAN MEANS ON AFRICAN TERRAIN.
[Moyens d'Europe en terre d'Afrique.] Captain Grimaux

Maneuver, with discontinuous fronts, regains its value in Africa. The defensive in a continuous line should be rejected, since the small value of the ground does not warrant undue effort to retain it. Zones of action should be larger. The strategic concentration should envisage mobile forces placed with a view to a maneuver battle with destruction of the enemy the object. Bases of supply must be constructed, well dispersed and fortified. Subordinate leaders must learn to depend solely on themselves.

VEGETIUS.
[Végàce et l'instruction des cadres et de la troupe dans l'Armée romaine.] Captain Reyniers

In the fourth century, Vegetius, one of the first writers of the period, was required by the Emperor Valentinien II to assemble and write the regulations of the military institutions that had been the foundation of the glory of Rome. Captain Reyniers quotes extensively from Vegetius and shows the application today of the Roman maxims.

REVUE MILITAIRE SUISSE (Switzerland)

BY MAJOR T.R. PHILLIPS, Coast Artillery Corps

March 1938

THE OPENING PHASES OF THE WORLD WAR ACCORDING TO A RECENT BOOK.
[Les débuts de la guerre mondiale d'après un livre récent.] Lieut. Colonel Meyer

A discussion of German and French war plans and initial strategy based on the recent book of General Duffour: "Joffre et la guerre de mouvement." (In C. & G.S.S. Library)

PREPARATORY MILITARY INSTRUCTION OR NATIONAL EDUCATION.
[Instruction militaire préparatoire ou éducation nationale.] Captain Schenk

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SOME TASKS OF HEAVY INFANTRY WEAPONS IN PREPARATION OF A DEFENSIVE POSITION.
[Quelques tâches des armes lourdes d'infanterie dans la préparation d'une position défensive.] Lieutenant Gaberell

April 1938

A SOLUTION TO THE PROBLEM OF THE HIGH COMMAND.
[Une solution au problème du Haut-Commandement.] By the Swiss Society of Officers

A study and recommendation for the reorganization of the command and administration of the Swiss Army.

THE EIGHTH INTERNATIONAL HORSE SHOW AT GENEVA.
[Le 8e Concours hippique international de Genève.] (I) Colonel Poudret

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ANTITANK DEFENSE.
[La défense anti-chars.] (I) Captain Daniel

May 1938

OFFENSIVE WARS OF SWITZERLAND IN THE FIFTEENTH AND SIXTEENTH CENTURIES.
[Guerres offensives des Suisses aux XVe et XVIe siècles.] Colonel Lecomte

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ANTITANK DEFENSE.
[La défense anti-chars.] (II) Captain Daniel

THE EIGHTH INTERNATIONAL HORSE SHOW AT GENEVA.
[Le 8e Concours hippique international de Genève.] (II) Colonel Poudret

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BY LIEUTENANT COLONEL L.W. HILLIARD, Field Artillery-Reserve

June 1938

MODERN INFANTRY AND ARTILLERY.
[Infanterie et artillerie modernes.] General Rouquerol

The author brings out that new ideas and methods introduced since the World War have not yet been proven on the field of battle. In the whirlpool of thoughts on the form that great battles of the future will take, we must conclude that force of the infantry will be in its flexibility while artillery makes itself felt by the weight of well-placed projectiles. At present, nothing appears to be capable of replacing either.

In his conclusion, General Rouquerol states that the development of mechanized forces has not diminished the importance of infantry and artillery. It has made their role more difficult because of camouflage to prevent aerial observation. It must be more alert to protect itself against gas attacks. Infantry must be capable of maneuvering into position for combat. All personnel of mechanized units must be given best available technical instruction. The concern of all artillery officers must be the prompt execution of supporting fires.

EXERCISE OF THE INITIATIVE.
[L'exercice de l'initiative.] Lieut.Colonel Mayer

In war, it is important that orders be executed without hesitation, as quickly and as intelligently as possible. If orders are not properly executed, the commander is exposed to great perils. Prompt action depends largely upon the exercise of the initiative by subordinates. To get the best from subordinates, we must adopt the most efficient method of command. Napoleon represents one extreme in that he allowed very little latitude; he was the exponent of centralized command. On the other hand, von Moltke profited by the individual will and initiative of his staff.

In this article, the author gives many historical examples showing how good leadership was accomplished by a variety of methods. The great increase in size and mobility of modern armies injects new difficulties into the problem of command. The temperament and degree of training of officers will have a distinct bearing on the question of control. The exercise of the initiative is essential to success. So, now, how can it be best attained?

A CONCRETE CASE OF INFANTRY TACTICS.
[Un cas concret de tactique d'infanterie.] Captain Nicolas

This article is given to show the employment of an infantry company in an attack. It is taken from a problem conducted in a recent maneuver. The general situation and each special situation supported by maps cover the problem thoroughly. The phases covered include:

The approach march
Technical employment of the arms
Tactical employment of antiaircraft fire
Effect of an air attack on morale
Gaining contact
Employment of the weapons
Maneuver of the company
The main attack
The surprise attack (like our wide envelopment)
Infantry-artillery liaison.

The author chooses to show actions of one company only in order to show the employment of a small infantry unit controlled by a company commander.

INFANTRY OF THE AIR IN THE DEFENSIVE. (GERMAN OPINIONS)
[Opinions allemandes: L'infanterie de l'air dans la défensive.]

In the "Deutsche Wehr," M. Hans Steinberger has recently studied the problem of the employment of infantry of the air in the defensive.

It is certain, the author says, that we have had the beginning of the building of the first elements of infantry of the air, concentrating all attention on the employment of this new kind of infantry, more often in the offensive. After all, employment of this infantry can be thought of in thickly or thinly populated regions, as for example, certain portions of Russia would not be the same as in Central Europe, where the density of population is greater; it is an arm which seeks to gain time, but in thickly populated areas it would find rapidly thrown before it adverse elements which would paralyze its action.

It is not the same in critical moments on the defensive, where the proverb, "Rapid aid is double aid," is always true; there are surely defensive situations where two companies which can be emplaced in one hour would be more valuable than ten divisions the following day; and in the last war, there were numerous instances where the defender would have been favored in action if one or two regiments of infantry of the air had been available, and where certain active divisions would not have been routed if they had not been pushed into action too rapidly, tired out, and exposed to the hardships of a long march prior to engagement.

But, continues the author, one must consider the problem of a higher echelon, and not look at the employment of the infantry of the air only in a crisis, on the defensive, but to look at the very problem of the constitution of reserves.

If the possibility existed of transporting infantry of the air at least fifteen times quicker than foot troops, one could see that armies could go back in certain instances to the building of reserve fortification; the consequence would be that troops on the front could be assured the protection of larger sectors, and armies could dispose their troops in superior numbers for their offensive operations. In this way, one could surmise that the infantry of the air engaged in defense would come, though indirectly, to contribute to the aid of the offensive of an army.

It is certain, says the author, that one must have effectives of considerable strength in infantry of the air and none the less, some elements for espionage, sabotage, and terrorization.

But if they wish to transport large contingents of the infantry of the air, it would be necessary to have many aviators, and here is the beginning of difficulties.

In this hour, aviation is always in the state of perpetual renovation. We seek new and more rapid matériel; the factories are thus buried in work, and if one wishes other than the bombardment planes, the construction of modern transport planes, it would be necessary to reduce the construction of the former, and one would not wish to do that, and the infantry aviators have not yet proven themselves.

What can be done with matériel still usable when other matériel has surpassed it? One cannot, at the same time, construct bombers and transport planes, but can use the old planes to get the organization under way during a period of instruction.

The limitation in quality of equipment imposes a limitation in its use and partly limits its employment offensively.

Certainly it is faulty in principle to use outclassed material, a little slow, and a little less manageable, to transport soldiers of high quality difficult to replace. In all cases we should give careful consideration to employing offensively troops so hard to replace, above all in Europe where the climate is not exactly favorable to such actions. Doesn't it seem that Russia has already reconsidered this whole problem?

Above all, prudence should be the order of the day.

THE GOVERNMENT ARMY IN SPAIN.
[L'armée gouvernementale espagnole d'aujourd'hui.]

This article gives the essential points of a report on the Spanish Government Army by a newspaper correspondent, M. Rene Bayer. He brings out much of the organization as far as it is known. On the whole, it is poorly organized, poorly uniformed, and poorly managed. The author states that the forces consist of five armies of from two to four corps each, approximately 500,000 men.

July 1938

WAR AND THE ARMY. (By General Debeney)
[La guerre et l'armée.] General Clément-Grandcourt

The author recommends that his comrades of the Swiss army read and reread this book, which is full of valuable ideas. In these after-war reflections of General Debeney, one will find a wealth of experiences quite different to those found elsewhere in the memoirs of other generals and statesmen. (In C. & G.S.S. Library)

OPINIONS OF MAJOR GENERAL FULLER ON THE MOTORIZED ARMY.
[Opinions du major-général Fuller sur l'arme motorisée.] Captain Bauer

This is a summary of the experiences of General Fuller with mechanization. It deals, in general, with the employment of the different kinds of tanks and armored cars.

General Fuller has recently returned from Spain where he has been following operations during the Spanish Civil War.

ITALIAN REPORT.
[Lettre d'Italie: Le "passo romano."] M. Gentizon

This article describes the new Italian "parade step." It has recently been adopted by all of the armed forces of the Italian army on the Italian peninsula. Its origin is not known, but it is thought to be an outgrowth of the "parade steps" of other countries, such as Germany.

It is difficult for the soldier to perform and has probably been adopted for disciplinary purposes. In years to come, this step will give the people of the Italian peninsula a national spirit equal to that of the Roman Empire.

THE VITALITY OF SOLDIERS IN COMBAT. (GERMAN OPINIONS)
[Opinions allemandes: La vitesse du fantassin au combat.]

In the "Deutsche Wehr," we find extremely interesting deductions as to the causes of a lessening of vitality of soldiers in combat.

This article gives many examples of the causes and effects of fatigue of soldiers in combat during the last war.

ROYAL AIR FORCE QUARTERLY (Great Britain)

October 1938

THE RELATION BETWEEN THE EFFECTIVENESS OF AEROPLANES, AERONAUTICAL RESEARCH AND ADVANCED ENGINEERING SPECIALISTS. Squadron-Leader Fraser

ROUGERON'S "AVIATION DE BOMBARDEMENT." An abridged translation

ROYAL ENGINEERS JOURNAL (Great Britain)

September 1938

ENGINEER OPERATIONS IN THE SINO-JAPANESE HOSTILITIES AT SHANGHAI. Captain Davidson-Houston

THE TRAINING OF THE ANTI-AIRCRAFT SEARCHLIGHT SPOTTER. Captain Perowne

THE ENGINEERS OF THE GERMAN ARMY. Captain Holbrook

UNITED SERVICES REVIEW (Great Britain)

4 August 1938

IMPORTANCE OF A GOOD FOOD SUPPLY. Air Commodore Charlton

11 August 1938

THE SITUATION IN INDIA. Major Macnamara

AFTER THE SPANISH WAR. THE AIMS OF GERMANY AND ITALY. Air Commodore Charlton

25 August 1938

THAT INEVITABLE RUSSO-JAPANESE WAR. Air Commodore Charlton

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8 September 1938

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15 September 1938

NOTES ON MILITARY LIGHTER THAN AIR. Lord Ventry

22 September 1938

WHY BELITTLE MILITARY AVIATION? Air Commodore Charlton

29 September 1938

CHINESE AIR POWER. Air Commodore Charlton

6 October 1938

EYES SOUTH-EASTWARDS. GERMANY'S POLICY OF EXPANSION. Air Commodore Charlton

13 October 1938

HOW WORLD WAR WAS AVERTED. WERE GERMANY AND ITALY PREPARED? Air Commodore Charlton

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THE HORSE IN WAR. Major Macnamara

CHANGE IN MID-EUROPEAN SCENE. KEYSTONE OF BRIDGE OF SAFETY LOOSENED. Air Commodore Charlton

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OUR REARMAMENT EFFORTS MUST BE REDOUBLED. IS THERE A SILVER LINING TO THE CLOUDS? Air Commodore Charlton

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LIST OF PERIODICALS INDEXED AND KEY TO ABBREVIATIONS

A Ord = Army Ordnance
A Quar = Army Quarterly (Great Britain)
Bul Belge Mil = Bulletin Belge des Sciences Militaires (Belgium)
Can Def Quar = Canadian Defence Quarterly (Canada)
Cav Jour = Cavalry Journal
Cav Jour [GB] = Cavalry Journal (Great Britain)
CA Jour = Coast Artillery Journal
FA Jour = Field Artillery Journal
Ftg Forc = Fighting Forces (Great Britain)
La France Mil = La France Militaire (France)
Jour Amer Hist = Journal of the American Military History Foundation
Jour RAMC = Journal of the Royal Army Medical Corps (Great Britain)
Jour R Art = Journal of the Royal Artillery (Great Britain)
Jour RUSI = Journal of the Royal United Service Institution (Great Britain)
Jour USII = Journal of the United Service Institution of India (Great Britain — India)
Kraft = Kraftfahrkampftruppe (Germany)
MC Gaz = Marine Corps Gazette
Mil Mitt = Militärwissenschaftliche Mitteilungen (Austria)
Mil-Woch = Militär-Wochenblatt (Germany)
Mil Eng = Military Engineer
Mil Surg = Military Surgeon
Nav Inst Proc = Naval Institute Proceedings
Pion = Pionere (Germany)
QM Rev = Quartermaster Review
Ras Cul Mil = Rassegna di Cultura Militaire (Italy)
Rv l'Air = Revue de l'Armée de l'Air (France)
Rv d'Art = Revue d'Artillerie (France)
Rv de Cav = Revue de Cavalerie (France)
Rv d'Inf = Revue d'Infanterie (France)
Rv Mil Gen = Revue Militaire Générale (France)
Rv Mil Suisse = Revue Militaire Suisse (Switzerland)
RAF Quar = Royal Air Force Quarterly (Great Britain)
Roy Eng Jour = Royal Engineers Journal (Great Britain)
US Rev = United Services Review (Great Britain)

Jan = January
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A

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The evaluation of the Empire. (Ras Cul Mil — Mar 1938)
The Abyssinian War. (Rv Mil Gen — Jun 1938)

AERONAUTICS (MILITARY)

First attempts at military aeronautics in the United States. (Jour Amer Hist — Fall 1938)

AERIAL WARFARE

The fighting airplane. Will the multiplace ships challenge the "Flying Fortress"? (A Ord — Sep-Oct 1938)
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The service of supply of air forces. Based on Russian theory and Italian combat experience. (Mil-Woch — 29 Apr 1938)

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The fighting airplane. Will multiplace ships challenge the "Flying Fortress"? (A Ord — Sep-Oct 1938)
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Performers produce performers. (QM Rev — Sep-Oct 1938)
A period of history. The breeding establishment du Pin (Borculo). (Rv de Cav — May-Jun 1938)
The Eighth International Horse Show at Geneva. (Rv Mil Suisse — Apr, May 1938)
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The horse in war. (US Rev — 20 Oct 1938)
Horse purchasing committee of Saint-Germain-en-Laye. (Rv de Cav — Jul-Aug 1938)

ANTIAIRCRAFT ARTILLERY

The training of the anti-aircraft searchlight spotter. (Roy Eng Jour — Sep 1938)
How to increase the efficiency of visual reconnaissance. (Rv l'Air — May 1938)
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Circular mounting for mechanical-electrical training of anti-aircraft machine guns. (Mil Mitt — Apr 1938)
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Antiaircraft defense in modern armies. (Ras Cul Mil — May 1938)
A motorized reconnaissance group in the grand maneuvers of the west in 1937. [See "Foreign Military Digests"]

ANTIAIRCRAFT DEFENSE

The new face of war. (Inf Jour — Sep-Oct 1938)
Protection Z (gas protection). The new common German gas mask. (Rv d'Art — Jan 1938)
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Attack with chemical gases and defense against them. (Ras Cul Mil — Jun 1938)

ANTITANK

Tank tactics. Modern conceptions of the employment of tanks both in the German and in foreign writings. (Kraft — Jun 1938)
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Czechoslovakian views on modern tanks and defense against them. (Mil-Woch — 13 May 1938)

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A concrete case of infantry tactics. (Rv Mil Suisse — Jun 1938)

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Development of steel armor of forts. (Pion — May 1938)

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Miscellaneous information. (Rv d'Art — Jan, Jun 1938)

ART OF WAR STRATEGY

Lost armies. IV. Strategical errors. (A Quar — Oct 1938)
Mobile control methods. (Cav Jour — Sep-Oct 1938)
Aspects of modern war. (FA Jour — Sep-Oct 1938)
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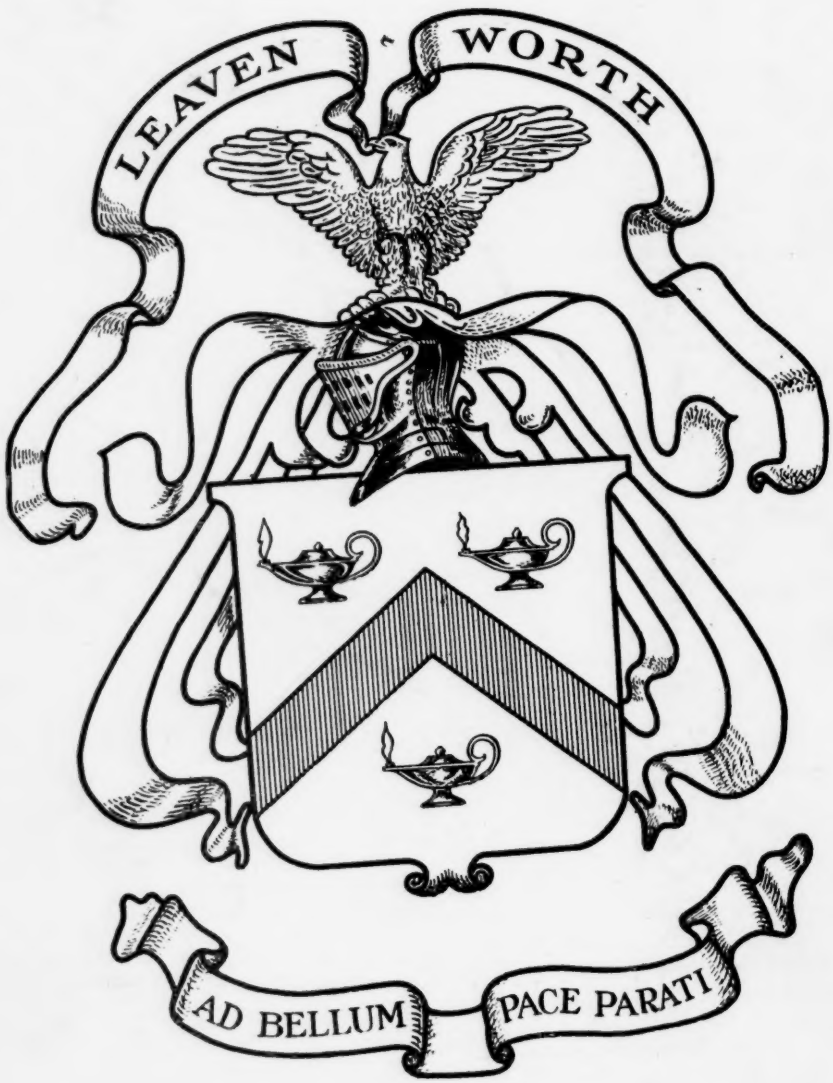
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